DOCUMENT RESUME

ED 347 273 CE 058 976

TITLE	Adult Literacy & Technology Newsletter. Vol. 4. Nos. 1-4.
INSTITUTION	Adult Literacy and Technology Project, San Ramon, CA.
SPONS AGENCY	Gannett Foundation, Arlington, VA.
PUB DATE	90
NOTE	90p.
AVAILABLE FROM	Adult Literacy and Technology Project, PCC, Inc., 2682 Bishop Drive, Suite 107, San Ramon, CA 94583 ($15 per year for individuals or nonprofit agencies; $50 per year for others).
PUB TYPE	Collected Works - Serials (022)
JOURNAL CIT	Adult Literacy & Technology Newsletter; v4 n1-4 Spr 1990-Win 1990
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	Adult Basic Education; *Adult Literacy; *Computer Assisted Instruction; Computer Networks; Computer Software Evaluation; Computer Software Reviews; *Courseware; Daily Living Skills; *Educational Technology; Educational Television; English (Second Language); Illiteracy; *Literacy Education; *Mobile Educational Services; Videotape Cassettes; Videotape Recorders
IDENTIFIERS	*Workplace Literacy

ABSTRACT

These four issues comprise Volume 4 of the "Adult Literacy & Technology (AL&T) Newsletter." Issue 1 contains the following articles: "Preparing Our Children for Their Future, Not Our Past" (David Thornburg); "The Video Project" (Michael Hanish); "Images of the Future" (Terilyn Turner); "Hyperapplications: Implications for Reading and Writing" (Jay Blanchard); "Software Review: Low-Cost Literacy Software" (Martha Lane); "Word Processing and Writing. Part Two: Editing and Revising" (Jane Laidley); "Networked Learning: Staff and Student Responses to the Corvus Hard-Disk System" (Larry Brown); and "Adult Academic Program Utilizes Computer-Assisted Instruction (CAI)" (Mary Negri). Articles in Issue 2 include the following: "Instruction a la mode: Types of Learning in CAI" (Larry Statan); "Network Shopping Tips" (Tom Pier); "Pushing the Envelope: University-Level Remediation and Multimedia Technology" (Ed Gueble); "Talk of Technology at the UN World Education Conference" (Martha Lane); "Hyperterminology from Hell" (Michael Swaine); "'America Online': Talk Is Cheap" (Ed Gueble); and "State Libraries Meet on Literacy" (June Eiselstein). Issue 3 contains the following: "Closed-Captioned TV and ESL (English as a second language) Instruction" (Ed Gueble); "Learner-Centered Instruction in the Workplace" (Ed Gueble); "At the 1990 AL&T Conference" (Ed Gueble); "Sharing Ideas in Canada" (Brent Poulton et al.); and "Apple Designates Intellimation as Its Software Source". Articles in Issue 4 are as follows: "Trade-Offs and Pay-Offs: Workplace Literacy at a Crossroads" (Ed Gueble); "On the Road again in Toronto: A Mobile Computer Lab" (Brent Poulton); "The Bus Stops Here: The L.A. Times Mobile Reading Lab" (Ed Gueble); "Technology and a Season of Caring" (Terilyn Turner); "OTA (Office of Technology Assessment) Begins Assessment" (Ed Gueble); "Software Review: Reading Realities Combines Literacy and Life Skills" (Sara Armstrong); and "A Few Books on Literacy, the Workplace, and the Culture." (YLB)

ED347273

ADULT LITERACY & TECHNOLOGY NEWSLETTER

Vol. 4

Nos. 1-4

CE058976

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

E Duebbe

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

Adult Literacy & Technology Newsletter
©1990, PCC, Inc.
Vol . 4, No. 1 Spring 1990

Preparing our children for their future, not our past

by David D. Thornburg, Ph.D.

Change is the metaphysics of our time. As we enter the last decade of the century, global transformations are taking place at an unprecedented rate. Eastern European borders are opening at a time when photographs sent from the distant reaches of our solar system provide us with new insights on our own fragile planet.

During the last decade we saw numerous new companies in new industries skyrocket into the Fortune 500, while many industrial giants languished and were forced to lay off tens of thousands

con't on page 10

CONTENTS

Video Project	1
Preparing Our Children	1
Images of the Future	3
AL&T News	4
Hyperapplications	5
Review: Literacy Software	6
Wordprocessing and Writing, Part II	7
Virus Update	10
Networked Learning	13

The video project

by Michael Hanish

About six years ago, I took a job as a home tutor with Vermont Adult Basic Education, executing a somewhat radical turn from my previous life as a free lance musician. Two years ago, by then thoroughly immersed in the work, I was introduced to the world of a remarkable personal computer, the Amiga, which was capable of stunning graphics and real-time video production at low cost. I remember very clearly the day of the brainstorm which led me to invest time and money in the machine and enter the world of desktop video.

I walked into the house of a student, a new reader, who was watching the end of her favorite TV show, "Perry Mason." When I asked her what was going on, she gave me a detailed synopsis of the show's plot. When we turned to the book of stories she was reading, it was a different bag. She understood all the words individually, but was unable to get a very clear picture of what was being described. We tried reading one of the stories together, and she was still unable to either retell the story in her own words or imagine a picture of what was going on. Mentally, I slapped myself on the forehead—as well as working on decoding the words, we also had to work on imagination, on visualization. Printed words for that student were alien elements that had only the most tenuous relation to a concrete reality.

The students at my next stop were watching "Sesame Street." All of a sudden it seemed possible and necessary to reach my new readers by making exciting and challenging video pieces. Obviously, I'm not presenting the

"All of a sudden it seemed possible and necessary to reach my new readers by making exciting and challenging video pieces."

prelude to an innovative theory of learning—I simply find myself continuously reminded of the power of imagination and play in the learning process.

A large number of our students either own or have regular access to Video Cassette Recorders (VCRs). Most, like the majority of people in this country, spend more time watching (or looking at) televisions and videos than they do reading. Viewing habits formed in this great bulk of time really constitute a way of seeing the world as much as a set of favorite programs. Television has become a passive and pacifying medium for most people; through increased hours spent watching, their participation in the world, and even their participation in active perception and understanding, has decreased dramatically. Television is certainly not the sole culprit, but tired viewers with 'safe' viewing habits gravitate toward programs that don't challenge them.

Reading, especially for readers to whom all written words are challenging, demands much greater participation and activity. As teachers we must develop realistic ways to encourage our students to look at, learn from and actively participate in the world around them.

con't on page 14

To bee, of not for be: What is the question?

In one of my alter egos I teach dramatic literature to a small class of writing students at the University of California at Berkeley. Quentin, a Chinese student lately from Toronto, botches prepositions, verb-subject agreement, and the occasional conjunction, as do some of the other students. I draw his attention to these mistakes. He recommits them or commits others of their ilk on the next assignment. One time I called him on his syntactic sins, accused him of laziness and apathy, and threatened that his grade would plunge to the bottom of a vat of ordure if he didn't fix these problems by the end of the semester. He howled back at me that "Prepositions are all idiomatic! There are no rules! No good rules! I will never learn them! English is my second language!" We have a healthy, if histrionic, relationship, Quentin and I. And it's a class in *dramatic* literature, remember.

I've been holding out on you, though. Quentin is a good writer: he attacks the plays in his papers, forms opinions about them, and relates them to his experience and to what he knows of critical theory. He shows that he's grasped the key points of my lectures, and he states his own reading of the plays pretty cogently. I'll probably steal some of his ideas on modal words in "Waiting for Godot" and "Hamlet"—'shall' versus 'will', 'nothing to do', that sort of thing—for use in my own work. Quentin also spends three hours every day writing fiction to send to his agent in New York. The prepositions stink in all of it, I'm sure, in the papers for me, and in the novels and screenplays for the agent. But maybe he'll make the big time.

"My comparative literature teacher says she doesn't care about my prepositions."

"Yes, Quentin, I'm sure. But this is a writing class, and I will teach you to use prepositions correctly."

This much of the conversation is predictable, even easy. But how do I grade Quentin's work, when the ideas are good, and well-expressed except for those damn little idioms? And how, with Quentin's prepositions as a point of reference, will I grade the rest of the class? On one level the answer springs as always from the purpose behind an act of writing—to get a good grade, to succeed at a job, to make someone love you, or leave you. Different purposes call for different standards. If the comp lit teacher is so easy-going, and if Quentin's goal is to write successfully in his classes, why should I press the issue? Especially if he's never going to get prepositions right?

On a more interesting level, what I've bumped into is a concrete example of the momentous change contorting the language of our culture: the '80s wave of immigration (with the help of a few ESL teachers) has given us millions of new English speakers from Asia and Latin America, some of whom will succeed brilliantly, some of whom will become 'functioning members', and all of whom will have some impact on the ongoing creation of our language. In forty years, perhaps, correct grammar and spelling and sentence structure won't simply be different then they are now, perhaps they won't exist. Our writing will be judged by its functionality, by its power or its surprises, and by its beauty. Not by its prepositions. We will have stopped trying to enforce correctness, we won't care about it. Concern for correctness,

con't on page 17

Newsbriefs

UNESCO has established an information exchange network on literacy in industrialized countries. For information on programs and people involved in literacy research and practice, contact network director Ravindra H. Dave, UNESCO Institute for Education, Documentation Centre, Feldbrunnenstrasse 58, 2000 Hamburg 13, Federal Republic of Germany, telex: 2164146, telephone: 040-44-78-43.

The Consortium for Interactive Instruction, based at WHRO Public Television, has produced two video discs, **"The Community of Living Things"** and **"The Greenhouse Effect,"** accompanied by HyperCard stacks. The Consortium is requesting letters from educators as to how videodiscs of this sort might fit into their curricula, and whether a need for such products exists. Interested parties may contact Dianne Lawrence, Director, Consortium for Interactive Instruction, WHRO Public Television, 5200 Hampton Blvd., Norfolk, VA 23508.

Gallaudet University will host the **National Conference on Adults with Special Learning Needs**, Aug. 14-18, in Grenelefe, Flor., with sessions on national strategy, teaching techniques and program innovations, and technology. Contact Boris E. Bogatz, Programs in Adult and Continuing Education, Gallaudet University, 800 Florida Avenue, NE, Washington, DC 20002, 1-202/651-5044.

The 45th International Conference of the Correctional Education Association will take place in July in Vancouver, British Columbia. Contact the International CEA Conference, Office of Continuing Studies, Simon Fraser University, Burnaby, British Columbia V5A 1S6, Canada.

Forest Chisman, Linda Flower, Henry Giroux, Shirly Brice Heath and Joan Seamon will be featured as panelists at the conference on **Responsibilities for Literacy: Communities, Schools, and Workplaces**, Sept. 13-16, in Pittsburg, Penn., sponsored by the English Program of the Modern Language Association. Contact Program Director David Laurence, 10 Astor Place, New York, NY 10003-6981, 1-212/614-6325.

The American Association for Adult and Continuing Education's 1990 Conference, **"On Trial: The Education of Adults,"** will

con't on page 21

In My Opinion

Images of the future

by Terilyn C. Turner

Ruthanne Kurth-Schai writes that "the past is the domain of memories and events over which we no longer have control. The present is the time in which we experience, think, and act. The future is a realm of uncertainty and possibility; the domain of goals and dreams." In her dissertation analyzing children's images of the future, she has recorded their simple but visionary ideas about technology—"people will be able to communicate by hologram messages," "you will have a robot for a friend," and "people will be able to make their own robot that talks and works in a kit for $2.00." Literacy-specific *Images of the Future* will be the focus of discussion at this year's AL&T Conference.

What is the true future-image of adult literacy and technology? Is it a passing fad? A panacea for the "illiteracy problem" that will never be solved? If technology has fallen short of its promise, what will it take to recover its momentum? No longer the "new kid on the block," technology carries a history with it, and not all of that history has been good. We know of projects in which thousands of dollars were used to purchase computers that idle on shelves. We know of the frustration of teachers made to teach a computerized curriculum of materials that did not fit their students.

We've learned a lot in the last five years. We have learned to say "no" to offers of technology which promise to do things that deep in our hearts we know computers can't do. We have become more selective in what we promise our students and what we promise ourselves.

We have also seen new possibilities and have been amazed by the real solutions afforded by technology, solutions to problems that would have stopped us cold ten years ago. Who can imagine,

"Does our interest in technology in literacy, and the attention accorded to adult literacy itself, screen us from more fundamental economic and political changes that are taking place, or does our work bring us into an effective relation to these problems?"

for instance, giving ESL instruction to members of the diverse populations that have entered our country in the last ten years without the proliferation of computers *and* of software? Applications of technology such as faxing a proposal to D.C. to get it to the Feds on time, are now a daily occurrence. Giving computers to students to use at home with their children has become an approach to a family-literacy problem that no one even recognized ten years ago.

So perhaps technology is just beginning to fulfill its potential. Perhaps technology is the "missing piece" in the literacy puzzle. At least as likely, though, is the possibility that technology is only a stop-gap measure for a problem that is worsening beyond our control. How does technology contribute to the ongoing redefinition of literacy?

Images of the Future asks us to frame our own opinions about the future and our role in shaping its course. Who should make decisions about the uses and relationship of literacy and technology?

con't on page 4

Images of the Future

The future of adult literacy education—the boundaries of possibility, preparing for the probabilities

Fourth Annual
Adult Literacy & Technology Conference
July 18-21 St. Paul, Minnesota

Conference Strands:

• Evolving Technology • Instructional Software • Workplace Technology • Special Populations • Program Management • Distance Education

Featured speakers will include:

Dr. Harold Hodgkinson
Director, The Center for Demographic Policy at the Institute for Education Leadership; NSF Distinguished Lecturer; past editor, *The Harvard Educational Review* and *The Journal of Higher Education.*

Dr. Michael Q. Patton
Author of *Qualitative Evaluation and Research Methods;* past President, American Evaluation Association; evaluator of technology in literacy nation-wide.

For registration, contact: Cheryl Zaccardi, 740 York Avenue, St. Paul, MN 55106
1-612/290-8330

Turner

con't from page 3

How will the literacy problem change, and what are reasonable goals for the next five years? For the next 20 years? Does our interest in technology in literacy, and the attention accorded to adult literacy itself, screen us from more fundamental economic and political changes that are taking place, or does our work bring us into an effective

"...changes in the composition of the group moving through the educational system will change the system faster than anything else except nuclear war."

relation to these problems? All of these questions are important, and all of them present different considerations at a national level, a regional level, and at the level of your program.

At the 1990 Adult Literacy & Technology Conference, to be held in St. Paul, Minnesota, from July 18th through 21st, reknowned experts in different fields will present their insights into the future-imaging process, and their unique visions of the future and its implications for adult literacy. Our goal is to help you clarify your vision of literacy problems on different levels by making these experts and their views available to you.

Our keynote speaker, Harold L. Hodgkinson, directs the Center for Demographic Policy. Widely known as a lecturer and analyst of educational issues, Dr. Hodgkinson holds ten honorary degrees and has been editor of *The Harvard Educational Review* and several other journals. He is the author of 12 books, three of which have won national awards, and has published over 200 articles. Dr. Hodgkinson will present the demographer's view of the future.

In the introduction to his book, *All One System*, Hodgkinson writes, "Almost everyone who works in education perceives it as a set of discrete institutions working in isolation from each other.... People working in each of the institutions have virtually no connection with all the others and little awareness of educational activity provided by the total. Because of this, the school is defined as the unit, not the people who move through it. The only people who see these institutions as a system are the

con't on page 16

AL&T News

Gannett funds AL&T for fifth year

The Gannett Foundation has renewed funds for the Adult Literacy & Technology Project. Ongoing projects include the newsletter, our annual conference, and research for a new edition of our software guide. Our thanks to Gannett Foundation Vice President Christy Bulkeley.

SE/30 prize at 1990 conference

The Apple Computer Co. has donated a Macintosh SE/30, with two-megabyte RAM and a 40-megabyte hard drive to the 1990 AL&T Images of the Future Conference. The Mac winner will be selected by a drawing among the conference-goers. Apple will also be making equipment available to conference-goers for hands-on training.

Nominations to AL&T Steering Committee

The current AL&T Steering Committee, governing board for the AL&T Project, has issued a call for nominations for new members of the committee. Members of the Steering Committee meet several times per year (travel expenses are reimbursed), and contribute individually to the ongoing operation of the project. Membership on the Steering Committee is a volunteer position, with no small commitment of time and energy.

The current members of the Steering Committee have directed AL&T since its inception in 1985. (There must be a reward somewhere, perhaps in friendship.)

Eligible nominees should be heavily involved in the field of adult literacy, with experience in (and a vision for) the integration of technology into that field. Nominees will be invited to attend an open Steering Committee meeting at the July, 1990, conference in St. Paul, Minnesota.

Letters of nomination, which may be written either by the nominee her/himself or by a third party, should be sent with a curriculum vita to the Steering Committee explaining: the nature of the nominee's interest in the organization; past adult literacy involvement; current adult literacy involvement; and a brief statement of the nominee's opinions on the appropriate uses of technology in adult literacy education.

Letters should be addressed to John Fleischman, Chairman, Adult Literacy & Technology Project; 2682 Bishop Drive, Suite 107, San Ramon, CA 94583. Nomination deadline is July 1, 1990.

1991 AL&T Conference

The 1991 AL&T Conference will be held July 17-20, in Costa Mesa, Calif., at the Red Lion Inn. Buy a 1991 calendar and mark it. "We're going to Disneyland (after the serious parts, of course)!"

Hyperapplications: Implications for reading and writing

by Jay Blanchard

The extraordinary amount of information that can or even must be learned in today's world presents a real challenge for teachers of Adult Basic Education. Hyperapplications—such as SuperCard for the Mac, UltraCard for the Amiga, Guide for MS-DOS-based computers, and other offspring of Apple's HyperCard—foster an interactive approach to this mountain of knowledge, an approach which far surpasses the traditional strategies of information organization.

First described by Theodore Nelson in the 1960's, hyperapplications allow users to discover, create and share connections between pieces of information. The information can be organized by associative and other kinds of relationships, and not necessarily or only according to inflexible and alogical categories such as alphabetical or chronological order. Hyperapplications can store and process video and audio signals and graphic images, in addition to text and programmed instructions.

The spark for Nelson's original idea came from his realization that traditional information organization impedes the acquisition and use of knowledge, by splitting related information apart irrevocably. As Microsoft Corporation's Bill Gates explains, "People don't think and learn in a straight line, from one fact to another; they go off on a million tangents, because they're interested in a million things. They don't want to learn only what symphonies Beethoven wrote; they want to know how literature and art were influenced by his music."

Nelson foresaw that the explosive growth of data acquisition—facts, figures, calculations, observations, history and so on—would make access and retrieval more important issues than simple data storage, whether in a computer disk drive or in a library. Hyperapplications, by relying on fluid, logical or even whimsical links between entries, more closely duplicate the way we think. For students, learning on hyperapplications both takes advantage of and reinforces this way of thinking.

"Hyperapplications, by relying on fluid, logical or even whimsical links between entries, more closely duplicate the way we think"

Truly active exploration of hyperdata (text or images or sounds stored in a hyperapplication) results from students deciding on their organizational schemes as they 'move' through the information according to their own interests and associations. They choose their own organization for the information. In a passive approach to hyperdata, a student might rely on teacher- or programmer-created 'default' pathways through the information.

Inexpensive hyperapplication-based activities for children and adults are now available, many of which are directly applicable to literacy education.

Kids Learning to Read

There are more hyperapplications for beginning reading and language readiness than for any other area of education. Some examples:

- *Amanda Stories*, Voyager Company—the first reading-education hyperapplication. Students make their own scenarios for the adventures of a camel and a cat.
- *The Dream Called Storm*, B&B Soundworks—two girls spend the night in a storm filled with surprises.
- *Alphabet Blocks*, Bright Star Technology—a non-fictional series which teaches letter-sound relationships using a cartoon elf with digitized speech and synchronized lip movements.

Other offerings include *Vary Tales*, from Macademic Press, a re-rendering of several classic stories; and *The Manhole*, from Prolog Software, in which students take off on adventures up a beanstalk or down a manhole.

Adults Learning to Read...

Hyperapplications present great opportunities for teachers interested in adult literacy. Drexel University in Philadelphia has designed several hyperapplication-based activities, including: *Alphabet for Adults*, *Vowel Combinations*, *Blank-It* (a cloze game), and *Storyline*, which uses stories to enhance analytical reasoning.

...and Reading to Learn

Hyperapplications allow students to organize large amounts of information in ways that enhance both reading and learning. Activities are available in many languages, including Spanish, Russian, and Japanese. Geography, U.S. political history, biology, and many other curriculum areas are also covered.

In Grolier's *American Academic Encyclopedia*, a hyperapplication has been coupled with optical-disk technology to create a vast stockpile of information in various forms. Although not a game or drill-and-practice program per se, this product provides an exciting platform for research and independent learning.

Writing

Intermedia, developed at Brown University, allows writers to link information together, create paths through a body of material, annotate texts, or make notes

con't on page 16

Software review

Low-cost literacy software

by Martha A. Lane

Several inexpensive programs suitable for both beginning English and basic literacy adult students have recently come across my desk. Alphabet-based graphics, and low memory- and storage-requirements place these kinds of programs well within the creative abilities of groups and services specializing in freeware, shareware and other low-cost software. Software from these sources often lacks documentation and/or sophistication, but it can nonetheless be useful to individuals and organizations. Why? Because the price is right!

Player's Choice (version 2.0)

Player's Choice contains a number of games and puzzles, plus a filemaker that allows instructors to input their own materials. Most of the games provided are of the fill-in-the-blank variety. When shown, for instance, "*My mother ____ black hair*," the player chooses from four words to complete the sentence (*have, is, has, having*). Games provide practice with such topics as various parts of speech, idioms and questions. Every time three correct answers are given in a row, users can guess the letters or word in another type of puzzle, faintly similar to TV's *Wheel of Fortune*. There are two graphic cartoon characters: a robot that points to words chosen and a running figure that indicates how far the user has come towards earning another bonus puzzle.

Despite being described as "user friendly" in the catalog, Player's Choice takes a bit of experimenting before individualized materials can be input. To find out what you need to know, go to the successive teacher's menus and choose:

1) File Maker
2) FILER: Make/Update/Remove Files
3) Update Files
4) a file name, i.e. BODY VOCAB
5) LIST Entries.

Once you have printed out this list, then you can follow the same format to input your own data. Custom data can be entered in either English or Spanish, thanks to some specially assigned control functions.

CUE SoftSwap
P.O. Box 271704
Concord, CA 94527-1704
1-415/685-7289

Required hardware: Apple IIc, IIe or IIGS, with 64K RAM; one 5 1/4" disk drive; printer is optional

Price: $10.00

The Picture of English

This disk provides picture clues for more than 150 common nouns (sun, vase, kangaroo, telephone, vacuum cleaner). Games can be played by one or two players. One game, FLASH! shows a picture, with the correct spelling of the object's name shown for a length of time chosen by players (constantly, never, or for various numbers of seconds). The game also displays a number of blanks equal to the number of letters in the word. Various prompts are given students, based on how many times they misspell the word as they type it in. When custom word lists are inserted, there are no graphics, just the flashing of the word itself.

In ZAP!, users see the picture and three spellings of the word. They choose the correct spelling with arrow keys or a joy stick.

MYSTERY! requires a much higher reading level than the other games. The program gives a short definition of a word. Various clues are given (including eventually the entire word), which prompt the student to type the word into the blanks provided. Sample clues: "a slow-moving animal with a spiral-shaped shell" and "used for holding flowers."

The program did not run on my older Apple IIc, but it did run on a IIe. The company is aware of this problem and is adjusting the program to run on the entire Apple II family. Both of the computers I used have monochrome screens, so I could not verify the "vibrant, full-color pictures" promised in the description. I think the program could be ported to the Macintosh very effectively. Of the software reviewed for this issue, *Picture of English* had the best documentation, although the instructions fail to say how to boot the program. All in all a nice little program.

Condrey Software
P.O. Box BR
Irvine, CA 92716
1-714/854-3096

Hardware requirements: Apple IIc, IIGS or 100 percent compatible; 128K RAM; one or two 5 1/4" disk drives; color monitor recommended; joystick (optional)

Price: not provided by manufacturer

English Grammar Computerized I

I cannot recommend this one, particularly given its price. Providing 100 practice exercises, this program is little more than an electronic workbook. Topics covered include, for instance, parts of speech. A review section explains rules and gives examples of their use. A practice section requires the student to type a word, phrase or sentence. The most interesting part of the program is an attempt to let students know the types of errors they make by marking letters with special characters: x means an extra letter has been added; = means a wrong letter has been typed; >< means letters have been transposed. However the IBM version of the program did not consistently use the same marking symbols, the Apple II version had no such mark-up system, and the Mactinosh version had an abbreviated system. None of the versions took full advantage of the strengths and characteristics of the

con't on page 8

Part two: Editing and revising

Word processing and writing

by Jane Laidley, Ph.D

This is the second of two parts. In our last issue, Jane Laidley reviewed current research and theories on the writing process, addressing the work of Donald Graves and many other sources, and on the history, theory and research results pertaining to the instructional uses of computers. In the following section, she surveys available information on the teaching of writing through word processing software, with specific attention to the processing of editing and revising as outlined by Graves. The sources for citations appear at the article's end.

Word processing and writing

Engberg (1983) says the novelty of word processing infused his class with a "spirit of cooperation," although he notes several limitations on the use of word processing with low-level learners, including the fact that composing on the computer, for students in his study, "proved to be a time-consuming process, especially for the poorer typist" (18). Nevertheless, his students helped each other as they sought to master [the computer]. The writing task became a chore to share" (18). Engberg was working with middle school students in a self-selected English/history seminar where the participants paired themselves (along gender lines, by choice) in using Apple IIs for written assignments. His conclusion, which again is unsupported by quantitative data, but which leads to the focus of this inquiry, is that students "were more willing to take chances with their prose, more apt to experiment with different wordings and phrases, while still careful to weed out the grammatical and spelling errors which appeared in their earlier drafts. In summary, these students wrote more and they wrote better when they had access to word processing" (19).

Quantitative evidence, however, of statements such as Engberg's continues to elude us. Some depictions of word processing as used in writing instruction do, however, suggest a relationship between the technology and Donald Graves' six stages of the writing process—prewriting, drafting, sharing, revising, editing and publishing.

"Without the word processor, the kind of classroom publishing recommended by Graves has been labor intensive on the teacher's part, involving typing the student's piece or copying by hand, laying it out and binding it with an attractive cover."

With regard to the publishing stage, the suitability of word processing technology is unquestioned. Green (1986: 145) states, "Without the word processor, the kind of classroom publishing recommended by Graves has been labor intensive on the teacher's part, involving typing the student's piece or copying by hand, laying it out and binding it with an attractive cover. Graves sees the computer speeding up and facilitating this vital process by helping the student produce his own 'camera-ready copy.'"

In his list of students' five major concerns about their own writing, Graves includes spelling and handwriting, and motor-aesthetic issues—issues which also paralyze some adult learners. His research shows that students equate messiness with a lack of knowledge; if the writing is not pleasing to the eye, they decide it must not be pleasing to the mind. "So it is possible that the word processor will help us discover a whole new population of writers" (Graves, in Green, 1986:145).

Several writers suggest that the word processor's major impact on students is to make writing seem more fun—expressive, even playful. "Such a playful attitude ["'messing around,'" see Papert 1980] toward words and sentences can enhance the writing process, by allowing students the opportunity to play with words as they might their Lego sets—constructing, tearing down, and reconstructing, until their inner sense of what's good is satisfied" (Engberg 1983, fn. 19).

Several articles describe ways in which those happy consequences for students benefit teachers as well. Thomas (1985) indicates that through access to word processing, "reluctant writers have suddenly become eager writers,... willing to talk about their writing and share it as they begin to internalize writing as a process—a living cycle of planning, drafting, and revising" (2). She suggests that computerized mechanics and style-checkers "free the teacher for real teaching of higher order thinking skills" (3).

Editing and Revising

It is important to bear in mind that students, teachers, and writers of all levels benefit from word processing. As John Green puts it, "As far as writers are concerned, if the computer did nothing else besides word processing it would still be the invention of the century" (1986:144). Desktop publishing, database, hypertext and telecommunications software all have ramifications for Graves' outline of the writing process. Word processing, specifically, facilitates the revising and editing processes for students and professionals alike. Research by Marcus has shown that most professional writers spend 85 percent of their time on prewriting (thinking, talking, making notes, outlining,

con't on page 8

Software review

con't from page 6
various types of computer.

Lingo Fun, Inc.
P.O. Box 486
Westerville, OH 43081
1-614/882-8258

Hardware requirements: Macintosh with one 3 1/2" disk drive; MS-DOS with one 5 1/4" disk drive; Apple II family with one 5 1/4" disk drive

Price: $49.95 for any version

Fragmentation

If you're looking for something a bit different and quite challenging, you may like this. Called a "word building game," Fragmentation presents combinations of syllables, such as "-ence,, "-homogen-," "imp-," and "-ness" in a grid pattern. Players race against a clock and each other to reassemble as many words as possible from these fragments. Players can receive clues by typing the number 1. The game is available in two formats: standard (with words such as "bonfire," "favorite," and "pecuniary") and SAT-preparation (with words such as "asinine," "vociferous" and "ragamuffin"). The documentation is very good. This interesting program defies adequate description— you'll just have to try it for yourself. It's quite a game for only $9.95.

Looking Glass Learning Products, Inc.
276 Howard Avenue
Des Plaines, IL 60018-1906
1-800/545-0292

Hardware requirements: Apple II family with one 5 1/4" disk drive; 48 K RAM

Price: $9.95

Martha A. Lane is an adult literacy consultant and a member of the AL&T Steering Committee. She can be reached at 601 E. Anapamu Street, #231, Santa Barbara, CA 93103.

Laidley, Part II

con't from page 7
brainstorming); one percent on writing (putting down the first complete version); and 14 percent on rewriting (proofreading, minor editing, and major rethinking) (1986:138).

Without revising and editing, a written piece will surely lack the clarity and precision that produces a credible work. However, "Studies of student writers have shown that they do little voluntary revising (Emig, 1971; Mischel, 1974; Wall and Petrosky, 1980). When students do revise, especially if they are not very skilled in writing, they tend to revise superficially, concentrating their revision efforts at surface and word levels (Bridwell, 1980; Monahan, 1982; Perl, 1979). The title of an article about revision by Odell and Cohick (1975), 'You mean, write it over in ink?' reflects the attitudes many students seem to have toward revising" (Kurth, 1986:3). The implications of this research for the teaching of writing seem great. Arguably, both writers and students will learn most about the mechanics of writing—spelling, punctuation, grammar and form—and about structural coherence and the development of their thoughts when they review and modify their work. Is it clarifying their thinking and choosing new ways of saying something that students resist? Or is it merely the tedium of recopying their earlier work over and over, for the sake of a few changes, which word processing can take care of quite easily? Can word processing give students the sense of play, described by Engberg, when they are revising?

In his study of 28 high school sophomores and juniors, Kurth found that neither the length of the paper-and-pencil and word-processing groups' compositions nor the amount of or quality of their revisions differed significantly. However questionnaires given to both groups to measure their attitudes about writing indicated that the experimental group "felt significantly more positive than the control group about the instruction they had received, about their ability to write, and about editing groups" (1). Kurth concludes: "As noted by Woodruff, Bereiter, and Scardamalia (1982); Collier (1983); and Bradley (1982), the importance of word processing as a motivational tool was apparent" (17). Yet again, the subjective impressions of researcher and subjects are positive, but not quantifiably substantiated. Even without deliberately encouraging free writing, however, teachers of writing are finding that students using word processors enjoy writing more, and view it as a dynamic, speech-like activity they can use for expressing themselves.

Daiute (in Peterson, 1984) characterizes the revision process as one in which the student can make several, narrowly focused, 'passes' to eliminate fuzzy thinking or specific kinds of errors: "Knowing that there will eventually be an automatic aid (the computer) in focusing on errors can encourage writers to postpone the evaluation process. They can concentrate on one activity at a time. At each stage in revising, their focus is on one task, thus ensuring more success because fewer activities are competing for attention. Such an orderly procedure does not necessarily reflect spontaneous revision processes, of course, but it does serve as a step-by-step guide both for those who do not yet revise their texts spontaneously and for accomplished writers who wish to revise more efficiently" (115). These focused activities might include spelling, punctuation, word repetition, and focusing or 'jazzing up' introductions, conclusions, and content.

Daiute further details her young writers' progress: "After using Catch (a text-analysis software program) for a month, eight nine- to twelve-year-old children did more kinds of revising, especially when they returned to using pen and paper. They changed more words in their essays, and they corrected more errors after they had used the computer. It seems that they carried over the strategies they learned on the computer, and they were better on their own" (115).

Fitch supports Daiute's assessment in a study of 7th-grade writing students divided into word processing and pen-and-paper paper groups. The study contradicts other reports of an impact on attitudes toward writing: "Though word processing did not affect students' attitudes toward writing or their ability to recognize incorrect punctuation or spelling, it did help students revise more and at a higher level" (Fitch 1985: abstract).

Graves believes that revision is a combination of attitude, understanding the process, and the practical matter of recopying when he says, "The problem that kids have with writing is that they feel the words that they put down are inviolate...that when it's down, it's down forever. Part of it is they don't feel the itch, the imbalance—the difference between their intention and what's on the page....With a computer he won't have to copy the whole thing all over again. He can go back and insert and there it is" (in Green, 1986:146).

The work of Margaret Riel comprises a seminal study in the research of the effect of word processing on writing

"Even without deliberately encouraging free writing, however, teachers of writing are finding that students using word processors enjoy writing more, and view it as a dynamic, speech-like activity they can use for expressing themselves."

instruction. Working with San Diego and Alaskan students who used telecommunications to publish a cooperative newspaper, Riel found that "when students realized that other people would read their work, not just to evaluate its form, but instead for its content, they took a very different approach to writing and actively engaged in the revision and editing of their own writing and the writing of their peers" (1983:61-62). Riel's work also documented that computers facilitated three types of social interactions: cooperative work among pairs, shared work in prewriting and idea formation, and creative functional writing environments that provided a sense of audience—all stages of the writing process before editing and revising. Riel has moreover stated in many reports of her work that there was an "important" change in student attitude about revising and editing: students learned to view technology as a means of communication and, in mastering the technology, experienced "ecstasy."

Conclusions about computers in language arts curricula are not substantiated by rigorous research as yet, but the work of early researchers and teachers is interestingly consistent: microcomputers are helpful in motivational and process-related ways when they are integrated with a sound writing and reading curriculum. My review, however, points to a dearth of quantitative analysis of the literacy-learning abilities of students using computers for word processing, as opposed to and in conjunction with drill and practice. The intuitive connection between word processing and writing instruction remains largely unsupported, and can't be counted on to provide guidance for schools and literacy programs in their decisions about the use of computers in instruction. Perhaps the best guide, if its truth is granted, is Walter Loban's credo that logical and critical-thinking skills are developed as writing skill develops. Further study may show that the most important impact of microcomputers on writing is the development of structured independent learning (Bruce, Michaels, Watson-Gegeo, 1985).

In any case, we as educators must address the changes computers bring about in the classroom, in the curriculum and in the cognitive processes of writers, if we are to make informed choices about how and when to use computers in education (Haas, 1987). I believe, with Graves, that "the teaching of writing demands the control of two crafts, teaching and writing. They can neither be avoided, nor separated," (Graves,1983:5) and that the use of computers facilitates and expands human network systems, resulting in language-skill development becoming more, rather than less, essential.

"Perhaps the best guide, if its truth is granted, is Loban's credo that logical and critical-thinking skills are developed as writing skill develops."

Dr. Jane Nissen Laidley, Director of PCC, Inc., a non-profit education corporation, is on the AL&T Steering Committee. She can be reached care of this newsletter.

References:

Ashton-Warner, S. (1964) *Teacher.* New York: Bantam Press.

Beazley, Malcolm R. (1989) "Reading for a real reason: Computer Pals Across the World." *The Journal of Reading.* 4; v.32, n.7.

Becker, H. J. (1987, July) *The impact of computer use on children's learning: What research has shown and what it has not.* Report No. 18. Center for Research on Elementary & Middle Schools. Baltimore, MD: The Johns-Hopkins University.

Black, M. ed. (1969) *The Importance of Language.* Ithaca, NY: Cornell University Press.

Bradley, Buff. (1986) "Machines don't dehumanize, people do." *The information age classroom: The computer as a tool.* Edited by T.R. Cannings and S. W. Brown. Irvine, CA: Franklin, Beedle & Associates; 222-226.

Britton, J. (1970) *Language and Learning.* Baltimore, MD: Penguin Books, Inc.

Bruce, B., Michaels, S., & Watson-Gegeo, K. (no date) *Reviewing the Black History Show: How computers can change the writing process.* (Unpublished manuscript). Washington, DC: U. S. Department of Education (contracts 300-81-00314 and 400-81-0030).

Cannings, T. R. & Brown, S. R. (Eds.). (1988)

con't on page 21

Future

con't from page 1

of people. During this same time we saw the personal computer grow from a hobbyist's plaything to an indispensable tool for daily business. On the communications front, cellular car phones have become commonplace, and the Postal Service is threatened by competition from Federal Express, and by the rise of facsimile machines.

Transformation is commonplace—while we used to say that the more things changed the more they stayed the same, it is probably more accurate today to say that the more things change, the faster they change.

All of this has tremendous implications for education. Our children enter school eager to learn, yet 700,000 of them drop out of the system each year to enter a world for which lifelong learning, to keep up with the accelerating changes, is now essential.

We risk splitting our nation apart unless we make education responsive to the needs of tomorrow's citizens. The growth of our nation is fueled by ideas. To generate, evaluate and act on ideas requires thought, and so the development of our students as actively engaged thinkers and problem solvers should be the very focus of our system.

"While we used to say that the more things changed the more they stayed the same, it is probably more accurate today to say that the more things change, the faster they change."

While a base of factual and cultural knowledge provides an important platform from which to view the world, a fact-based curriculum that does not develop students as independent thinkers can lead to a collapse of all we've achieved.

And yet parents often express dismay if they see their children deviating from the schooling they remember for themselves. "When I was Suzy's age..." the lecture starts, and we are treated to yet another tale of daily 20-mile hikes, barefoot, through the snow, to a school where "in my day teachers knew how to teach."

I recently heard a parent complain that we no longer teach children to extract square roots by hand. Never mind that our daily use of square roots is limited, or that you can get a solar-powered calculator from Walgreens for five bucks that will give you all the square roots you want; this parent felt that his child was receiving an inferior education—he didn't understand that the child's world differed greatly from his own.

A friend of mine, Gerry Morgan, gave me a wonderful way to handle this parent's concern: After listening to the "When I was Suzy's age" lecture, acknowledge that education was different then, and point out that the parent will never be Suzy's age again; Suzy, on the other hands, will be the parent's age someday. When will that be? Probably sometime well into the next century. What will the world be like then?

What industries will be at the top of the economy? How many careers will Suzy have in her lifetime? How likely is it that she will have a job in an industry that doesn't even exist today? What countries will be our trading partners? Will we have mines on Mars?

I don't know the answers to these questions. Neither does Suzy, but neither does her father.

Since we don't know the details of the future, the best we can do is keep the fire of active learning burning bright in Suzy and in all our other students. Aristotle said that we, by our nature, desire knowledge. Plutarch placed this in an educational context when he said, "The mind is a fire to be kindled, not a vessel to be filled."

Tragically, too many of today's classrooms focus on vessel filling rather than on fire kindling. Even if we know which facts to pump into students' heads, this model of education is inhumane.

Fortunately, there are many practical alternatives that help foster students' engagement in the learning process. Howard Gardner, in *Frames of Mind*, identifies seven distinct intelligences which each of us can use to varying degrees (linguistic, logical-mathematical, intrapersonal, spatial, musical, bodily-kinesthetic, and interpersonal).

'Virus' Update

Versions of three programs running on Macintosh computers have been reported as "trojan horse" programs, applications which have built-in computer code which will cause virus-like malfunctions. Unlike viruses, trojan horses do not spread to other programs or computer systems. If you have copies of these programs, do not run them.

The programs are:

◆ Mosaic ◆ FontFinder ◆ VirusInfo

When launched, Mosaic deletes the directories on any mounted volumes, and also tries to mount any SCSI devices on the SCSI chain. All attacked disks are renamed 'Gotcha!' FontFinder, if your computer's calendar is set before Feb. 10, 1990, displays a list of fonts and sizes available. After that date, it behaves in the same nasty fashion as Mosaic. VirusInfo, which has only been reported in one location, deletes the Finder and then quits, causing a systems crash.

Our schools are generally set up to teach to the linguistic, logical-mathematical and intrapersonal learner. But show this list of intelligences to any special education teacher and ask which intelligences appear in his or her class. Imagine a classroom set up to teach to the musical, bodily-kinesthetic child. Who would be learning-disabled then?

But whether we base educational reform on Gardner's theory of multiple intelligences, on McLean's triune brain theory, or on any other model, we must start with one basic premise: if we are in the business of education, we must start treating students as if they were customers.

Think for a moment about your expectations as a customer for a service. Do you expect to be treated with kindness and respect? Would you do business with a store that put you down if you made an incorrect purchase? How often do we foster mutual respect in the classroom? It is true that, like mental hospitals and prisons, schools are filled with people who are required to be there, but this does not excuse the abuse to which numerous children are subjected every day.

For example, our major evaluative methods pit students against each other rather than measure them against desired learning outcomes. The effect of norm-referenced tests is devastating in that it labels half our students "below average." If we were to measure students against desired learning outcomes instead, all children could be winners (assuming they mastered the material.)

And yet, the present system that pits student against student, school against school, and state against state, seems to be a comforting measure of performance to parents, who can place their children in a district that "scores well" without having to concern themselves about what is being taught.

We enter the 1990s with many challenges:

1. Our classrooms are relics of the 19th century. Few have copiers, telephones, computers, or other essential tools of the information age. As for more traditional audio/visual equipment, the average American den is better outfitted than most classrooms. We've ten years left in the century, and technologically, with regard to our classrooms, we've ignored the past 100 years.

2. We know that each student has unique strengths that can be applied to the study of any topic. Our educators need to learn how to identify and teach to the strengths of all students.

3. Assessment needs to become more humane and directly related to learning. Whether we explore portfolio or other criterion-referenced authentic assessment tools, we need to shift away from multiple-choice norm-referenced tests that teach nothing and test little of relevance.

You can (and should) add to this list. What additional teacher education will be required? How will it be funded?

"Our classrooms are relics of the 19th century... technologically, with regard to our classrooms, we've ignored the past 100 years."

How will classrooms change physically as we prepare for the new century? What should be the teacher's main role—content expert, facilitator, or a blend of the two? What is the desired role for administrators in the future?

I have opinions on these topics, but no hard answers. All I know for certain is that we must prepare our students for their future, not for our past.

Dr. Thornburg provides creativity, self-esteem, personal development, and educational technology workshops to over 20,000 educators a year. He can be reached by mail at the The Thornburg Center for Professional Development, 1561 Laurel, Suite A, San Carlos, CA 94070.

© David Thornburg, 1990

AL&T Steering Committee

John Fleischman (Chair)
Los Angeles, CA

Eunice N. Askov
University Park, CA

Robert D. Clausen
Monmouth, OR

Jane Nissen Laidley
San Ramon, CA

Martha A. Lane
Santa Barbara, CA

Antonia Stone
New York, NY

Terilyn C. Turner
St. Paul, MN

Publisher
PCC Inc.

Editor
Ed Gueble

Art Director
Kristin Prentice
Sphinx Graphics

Associate Editor
Ellen Margolis

Printing
E&C Offset

Fullfilment
San Francisco Mail Service

©1990 PCC, Inc.
2682 Bishop Drive, Suite 107
San Ramon, CA 94583
(415) 830-4200

The *Adult Literacy and Technology Project* appreciates the gracious and consistent support of the **Gannett Foundation.**

REASONING SKILLS ON THE JOB™

Employers must have workers who can use their heads.

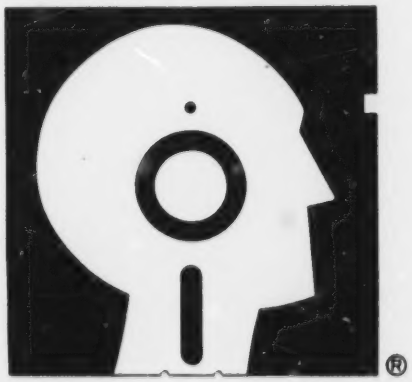
Their corporation's future depends on it.

Perhaps no other workplace basic skill is as important as the ability to use one's head to solve work-related problems. From entry-level positions to middle and upper management, employees must be able to critically think and solve work-related problems.

No longer are the three Rs enough. Employees must be able to apply what they have learned and be able to critically think and solve work-related problems. We at The Conover Company have been working for almost ten years on developing our work-related basic skills programs.

REASONING SKILLS ON THE JOB™ is the newest program in a series known as our WORKPLACE LITERACY SYSTEM™. Other programs within this series are LEARNING ACTIVITY PACKETS (LAPs), MATH ON THE JOB™, ENGLISH ON THE JOB™, and SOCIAL SKILLS ON THE JOB™.

For free information on our reasoning skills program, as well as other programs in our WORKPLACE LITERACY SYSTEM, call or fill out the coupon below.



For a free catalog, fill out and return our coupon today.

20 ROJ

Name _____

Position _____

School _____

Address _____

City _____ State _____ Zip _____

Phone _____

The Conover Company Ltd

PO Box 155 Omro, Wisconsin 54963 800-933-1933

Networked learning:

Staff and student responses to the Corvus hard-disk system

by Larry Brown

In 1988, having compiled and employed computer-assisted instruction curricula using stand-alone (i.e. floppy disk-based) software programs for three years, 70001 Training and Employment Institute began investigating an improved system that would ensure the use of instructional software already on hand, minimize record-keeping requirements, and simplify staff training. Consequently, the organization retrofitted four of its sites, which had used Apple stand-alone software, introducing an integrated learning system to connect the Apple computers via an on-site network.

A national nonprofit organization, 70001 Training and Employment Institute provides education, employment services, and motivation to thousands of at-risk youngsters every year. 70001's model for serving young people (called "associates") is designed to improve opportunities for success in the work force. 70001 operates educational service centers offering self-paced instruction through the use of computers and audio-visual materials.

The selected configuration, designed by Ideal Learning, Inc., offers courses in reading and math on Apple II computers connected through the CORVUS hard-disk system, and incorporates test scoring and recordkeeping.

Evaluation forms completed by associates and staff at the four participating sites from August 1, 1988, through June 30, 1989, provided a response to the new system. Associates' scores on several standardized tests (Test for Adult Basic Education [TABE], General Education Development [GED], Comprehensive Adult Student Assessment System [CASAS]) before and after working with the Corvus system were also compiled. Results of the findings were presented at the Adult Literacy and Technology Conference July 20-22, 1989, in Louisville, Kentucky.

The nine 70001 field staff members who reported were unanimous in their judgment that the networked learning materials could be used independently and that this program would make a meaningful addition to most classroom activities.

The 84 associates completing the student surveys spent from several weeks to more than four months on the networked system. On average, they worked through 16 problems for every ten minutes spent on the computer, a high rate of work that supports comments about the "convenience," "faster learning," and "challenge" of using this kind of integrated-system learning approach. Almost all (82 out of 84 respondents) reported feeling "successful" as they worked through the program.

The average grade-gain for 47 associates at three sites was 1.41 grades for reading and 1.92 for math. The highest individual reading grade-gain was 6.6 grades; the greatest individual grade-gain in math was 4.2 grades. The fourth 70001 site graded achievement for its 37 associates according to the CASAS model, which uses a different point scale. Learning gains of five to ten points were comparable to about one grade-gain for every 100 hours of instruction, which was roughly equivalent to the other programs.

Associates and staff also pointed to system drawbacks. Although field staff provided reasons for their weak ratings of various features in the networked system, none thought these drawbacks were serious or prohibitive. Staff members pointed to five weaknesses in the use of computers to present instructional material: a lack of clarity in some learning concepts, a need for special in-service training of program staff, limitations in student assessment procedures, difficulties with computer commands, and a need for varying levels of "help" information.

Associates also identified problems which, while not prohibitive, did affect their learning. Of the 84 associates surveyed:

- 19% (15 responses) were frustrated with parts of the program
- 4% (3 responses) could not see their progress as they worked through the program
- 3% (2 responses) did not feel successful as they went through the program
- 15% (12 responses) thought the material was too easy
- 8% (6 responses) thought the material was too difficult
- 9% (7 responses) thought the material was sometimes too easy and other times too difficult
- 3% (2 responses) did not enjoy doing the program

One possible reason for students finding the instructional pace uneven is that the version of the curriculum used did not include a 'branching' feature to move a student automatically to a remedial exercise if he or she has missed one or more questions. Another possible explanation is that 70001 instructors chose to assign associates the preset curriculum of the networked model,

con't on page 21

Video project

con't from page 1

But, if reading is what's important, and if TV breeds passivity, why make videos? Our main focus here in Vermont is home tutoring. While we have learning centers and group activities, the bulk of our time in the program is spent one-on-one with students in their homes. The promise of individualized interactive learning stations or electronic distance-learning is bright, but way beyond our means and the practicalities of the moment. But other technology—video and audio, among others—is available right now to help us work with

"Viewing habits formed in this great bulk of time really constitute a way of seeing the world as much as a set of favorite programs."

the imagination and energy of our students as they learn to read. And when the imagination is tapped and activated, the reader is engaged in the material, involved and led to invest in the learning process. The written word leaps to life in the mind from its static existence on the page. I haven't developed videos intended to form a self-contained learning system. An overall system and the directing of the imagination are still the teacher's and student's responsibilities.

The old slogan, "Nothing ventured, nothing gained" has a predecessor: "Nothing imagined, nothing ventured." *My* imagination began working overtime and I took the plunge. I hocked a small part of my financial future and a great deal of my sleep reserves and bought an Amiga. By all standards, the Amiga is a very inexpensive computer, and very powerful for its low price. Current educators' discount prices for an Amiga 500 are in the neighborhood of $800 for a fully functioning machine, monitor, two disk drives, keyboard, mouse, one megabyte of RAM, and starter software. Generally, add-on software prices are low, especially when compared with similar packages for other computers. (A friend familiar with the industry tells me that a good rule of thumb is that most programs should cost in the neighborhood of ten percent of the price of the microprocessing platform.) So, for a relatively modest amount of money I armed myself with the tools necessary to realize what I had imagined: colorful, entertaining, student-specific animations and video pieces to stir *their* imaginations.

The Amiga, because of its design, is particularly well-suited to video and graphics applications. The user interface is graphic, meaning you are guided by pictures and menus rather than having to rely on your knowledge of the program commands. It's easy and inexpensive to convert the computer's video output signal, Red-Green-Blue, into composite video for recording on any videotape. The graphics output can also be easily genlocked—synchronized and overlaid—with images from a video cam/corder or other graphics on video tape. Moreover, the Amiga multitasks as part of its system design, meaning that several programs can be running and active simultaneously, thereby increasing productivity. And the machine runs naturally in color, which is so obviously important as to be almost essential. Within a very short but sleepless time, I was able to make my first video animation.

That first animation was done in an $80 paint-and-animation program called "Animator/Images," developed by Jim Kent. I had just come home from playing Scribbage with a student, and chanced on a picture of a DC-3 airplane. The game of Scribbage is played by throwing out a cupful of wooden dice with letters on each side. The objective is to make as many words as possible in the given time period. At my computer, I typed the word "airplane" on the screen and started moving the letters around, showing the process of making other words and phrases. By morning (I was just learning the program and all my mistakes took much longer to correct than they do now) I had a three-minute piece with the picture of an airplane as a background and moving letters and words in front.

"Airplane" is now the first piece on an hour-long demo tape, produced with the support of Vermont Adult Basic Education, being field-tested with students and tutors. All the pieces except two were made entirely on the Amiga and put on video tape with music and voice tracks in the late-night privacy of my home. Each animation is stored as a data file on a floppy disk, and then transferred to videotape, in this case on a consumer-grade VCR. The quality of the tape and the ensuing copies would have been better if produced in a studio, but they are quite watchable and serve for field testing. And the cost was right: just my time, which was my own to give.

Pieces on the tape deal with fractions, punctuation, storytelling, and some out-and-out silliness. The tapes are accompanied by packets of learning materials. Materials for "Airplane," for example, provide work on scrambling and unscrambling words, and include little cardboard letter tiles for manipulation.

The tapes have been out with tutors in Vermont, New Hampshire and Massachusetts for about six months now, and the responses have been enlightening, both in terms of the materials and how teachers deal with them.

By now, any teachers and students have enjoyed working with the package, done some wonderful writing and given some very helpful feedback. Humor seems to be among the package's strong suits, as are the pieces that graphically present hard-to-visualize concepts, such as equivalent fractions. But in some ways the negative feedback we've received has been more interesting, shedding unexpected light on both my video concepts and production, and on the habits and expectations of teachers and students.

One of the most frequent comments on the package has been that there are too

"By morning (I was just learning the program and all my mistakes took much longer to correct than they do now) I had a three-minute piece with the picture of an airplane as a background and moving letters and words in front."

many different kinds of things covered on the tape. One tutor explained that it was confusing to students when she had to repeatedly stop the tape and talk about a piece. Another teacher said that the pieces moved too fast for all the information to be gathered in one viewing. The next series of pieces I produce will be grouped by subject area, so the package won't call for as much effort—as I've pointed out, however, I support a learning process that calls for activity. And VCRs have the capability for more active use: the viewer can stop and rewind the tape to watch something a second, third or fourth time. I've made this recommendation at the beginning of the tape and in the print materials, but there has been great reluctance on the part of the teachers and students to follow though on the idea, perhaps because of their conditioning as television viewers.

Another group of comments addressed one piece in particular, a writing starter which is a kind of prompt to the imagination. The piece is a series of collaged pictures, multiple images with a slight relationship from one to the next. No pretense is made to tell a particular story through the pictures, there's no attempt at a linear structure; the viewer is encouraged to take note of the images and to work on ways of weaving the elements together into some sort of story, or several stories. Admittedly, this is a more difficult exercise than most of the others in the package, but I feel it is an important kind of work. Virtually none of the tutors helped their students to do more than watch the piece, and yet there were no comments about the piece, not even questions about the meaning or usefulness I had intended for it.

We must beware of the widespread and at times desperate desire to find the impetus for teaching in technology, whether it is the technology of print materials, videotapes or computers. Passivity on the part of many teachers, in the form of a willingness to place absolute faith in technology, lets the work of others provide the course of instruction. The problem isn't always resistance to the new, but resistance to new effort. I suppose this observation is yesterday's news, but I've been forced to realize its full importance, and its many forms, in relation to my development of the video package. One tutor said, in objecting to the music that went with one of the pieces, "That's too far out for me, and I'm sure it will be for my students." Some teachers were disturbed by the fact that few of the worksheets had answers provided, sometimes because there were no right or wrong answers, and sometimes because we chose not to provide the answers. I believe that teachers must sometimes be in positions of vulnerability like those that students are always in. Not knowing the answer is one of those positions; when this happens, they must face it and work through it, not turn away to preserve the appearance of authority.

The responses to the videotape also make the clear point that high production values are of the utmost importance. We have been conditioned by television in this as well—we are so used to looking at the multi-million dollar productions broadcast over network television that when anything less slick comes our way, our attention wavers. We decide, somewhere, that this particular video event is "less good." The video quality on the tapes must be very clear and the image stable.

When given the chance, we focus on the medium and exclude the message. My job as I continue to work on and develop this project is to try to bring my designs and imaginings to meet those of the teachers and students who will use the materials.

"The problem isn't always resistance to the new, but resistance to new effort."

The message I send needs to be one that they will receive; they need to learn to pierce the surface trappings of the medium. We all have to stretch.

Michael Hanish teaches in Vermont Adult Basic Education. He can be reached at Jacksonville State 274, Brattleboro, VT 05301-7006.

Call for Articles

The AL&T Newsletter will accept articles and newsbriefs on the uses of technology in adult education. Please submit articles by mail on 3.5" diskette written in Microsoft Word or MacWrite, or via AppleLink to LIT.ALTP or LIT.LAIDLEY. Typed or printed articles will also be considered for publication. Please include your phone number and a brief biography. To submit articles, or to inquire about deadlines and our writer's guidelines, please write, phone or link:

Editor
AL&T Newsletter
2682 Bishop Drive, Suite 107
San Ramon, CA 94583
415/830-4200

BEST COPY AVAILABLE

Hyperapplications

con't from page 5

useful to the reader. Its uses are diverse: one university class used Intermedia to study the poet Robert Browning, linking his literary relations, biography, religious influence and the historical context of his work. A Vancouver, Canada, seventh-grade class used

"Hyperapplications present great opportunites for teachers interested in adult literacy."

Intermedia to write an electronic yearbook linking students' friendships, favorite foods, schools subjects and TV shows.

These products are part of a new breed, with potential to create a new, more exciting environment for students and teachers, an environment that supports naturally occurring cognitive processes and preserves a dwindling educational commodity, the joy of learning.

Product sources and information

B & B Soundworks, 1040 S. Daniel Way, San Jose, CA 90025

Bright Star Technologies, 1450 114th Ave. S.E., Suite 220, Bellevue, WA 98004

Grolier Electronic Publishing, Sherman Turnpike, Danbury, CT 06816

Macademic Press, 1602 Westover Road, Austin, TX 75653

Prolog Software, P.O. Box 1446, Henderson, TX 75653

Voyager Company, 2139 Manning, Los Angeles, CA 90025

Stack Exchange, a quarterly catalog of hyperapplications, is available from Heizer Software, P.O. Box 232019, Pleasant Hill, CA 94523.

Dr. Blanchard can be reached, should you have questons, at the Dept. of Reading Education, Arizona State University, Tempe, AZ 85287-0311.

Turner

con't from page 4

students....It is our conviction that we need to begin seeing the educational system from the perspective of the people who move through it. This is because changes in the composition of the group moving through the educational system will change the system faster than anything else except nuclear war."

Dr. Michael K. Patton, noted evaluator of education programs and literacy projects, will offer a different perspective. Dr. Patton sits on the Board of the American Evaluation Association, for which he served as past president. He has also authored five major books and numerous articles, and serves as "Future" editor for the *Journal of Extension*. Dr. Patton describes the evaluator's role as guiding the future by using the experience of the past to direct the actions of the present.

For those attending the preconference sessions on Wednesday, July 18th, Ted Fiske, columnist for the *New York Times*, will provide a journalist's image of the "future for literacy," sponsored by the St. Paul Foundation. Fiske, a frequent writer on technology and education, will offer insights on the issues confronting us.

On Friday night, July 20th, we will push into the future through a media presentation by our featured speaker, Dr. Linda Roberts, and AL&T Chair John Fleischman. As a senior policy analyst for the Office of Technology Assessment in Washington, D.C., Dr. Roberts is charged with reporting to Congress on the newest technological developments in all areas of society. According to Dr. Roberts, "as information increases in economic value and is treated as a commodity to be bought and sold in the marketplace in direct competition with the notion of information as a public good, there is concern again for those who are underskilled, out of the information mainstream, and least able to pay." And on Saturday, the 21st, a panel of key policymakers will address the issues they see confronting literacy and technology in the future.

And then there is you. What is your vision of the future and how do you see making it a reality? I encourage you to attend the 1990 Adult Literacy & Technology Conference and spend some time sharing your ideas on the questions I can only touch on here.

What do you think the future holds for adult literacy and technology? Is literacy on the way out? Is it a topic to be replaced by the homeless for this year's dollars and special-interest stories? Will technology follow the path of education or chart its own course? Is technology still an emerging issue, cresting sometime in the future? How do workplace and family literacy fit with technology? And where do we see the learners in our images of the future?

Dr. Terilyn C. Turner is Assistant Director of Adult Literacy and Special Needs for the St. Paul, Minnesota, Public Schools, and a member of the AL&T Steering Committee. She can be reached by mail care of this newsletter.

Networked

con't from page 13

rather than exercise the option of customizing it to meet individual student needs.

Both staff and associates felt that networked learning programs were interesting, and helped them learn efficiently. Associates made the following comments: "You learn how to operate a computer and you sort of have a tutor"; "It demonstrates the problem so that you understand step-by-step"; "It makes learning fun in a different way"; "It teaches more in-depth and quicker than the other system." This year, two more 70001 sites plan to introduce the networked system to their programs.

Lawrence Brown is President of 70001. He can be reached at 501 School St., S.W., Suite 600, Washington DC, 20024, 1-202/484-0103.

Editorial

con't from page 2

in fact, will be a liability.

Perhaps I overstate the case. But bear in mind that correctness wasn't an issue for Gertrude Stein. And Shakespeare spelled his name a zillion different ways. Shakspeere. The greatest playwright in English spelled his name differently, no mere pronoun or article. His name. Maybe he didn't care about it; he certainly spelled lots of other words variously. Or maybe he really liked to change it around, like playing with his signature.

So what changed? Printing presses exerted a strong standardizing influence, as did typesetters and editors who could work faster if spelling was all the same at a local level. And Dr. Johnson published his dictionary in the 1760s, widening the sphere of people who had access to 'correct' spelling and could therefore be held accountable for same. And teachers, especially given an increasing bureaucratization of the education industry in the 19th and 20th centuries, have disseminated their share of regularity.

But English has always been a language of great appetites, taking in a terrific amount of French in one gulp after the Norman invasion, for example, and coughing up scads of new words since the industrial revolution. Of late,

"In forty years, perhaps, correct grammar and spelling and sentence structure won't simply be different than they are now; perhaps they won't exist."

science has begun growing great combinations of words, such as "immuno-compromised" and "multi-tasking," along with strange little words,

"Maybe correctness, as we know it, is a flash in the pan."

like "quark." As David Thornburg says elsewhere in this issue, "The more things change, the faster they change." As changes in the world keep accelerating, our language, the means by which we refer to and try to control events, will change to keep pace.

For teachers, and for all of us, the speed of change is both awful and beautiful—awful, because the body of knowledge is shifting and swelling like a storm at sea, but beautiful because in the midst of that storm, and afterwards, is the possibility of transcending the limits of unequal experience and unmeasureable talents. All of us are needed in a storm; we each have value.

Obviously, we won't care about correctness in the storm. Do we care about it now? Listen to President Bush respond to questions, and remember that his mangled English was more or less democratically elected. Or shut your eyes and listen to a TV show—a sit-com, a talk show, even the news—bearing in mind that American businesses, guided by experts who know what we want, spend millions of dollars to associate their products with that kind of writing. We choose language that uplifts us, excites us or even confuses us, and we hardly ever ask it to be correct. Concern for correctness in our own work (this newsletter, for example) is a kind of fetish, or a relic. Teaching correctness (my writing class, in other words) must sometimes be the imposition of conformity, and the failure to teach other, more crucial skills.

No, I don't think I've overstated the case above. Our idea of correctness is outdated at the same time that it's relatively new. Maybe correctness, as we know it, is a flash in the pan. In any case we need to learn how to teach without constriction, we need to find other standards and goals and commit ourselves and our classrooms to them. There will be upheaval, and the loss of traditional forms and habits that are dear to us. Skills that we that we have worked to acquire and learned to value will lose importance. But we are in a storm, I think, and at its mercy. We have no choice.

■■■

This issue features Michael Hanish's introduction to literacy video-making, which he uses as an occasion to jab at passivity and rote teaching. Drs. David Thornburg and Teri Turner both emphasize the importance of building accurate images of the future to guide our educational practices (which by a happy coincidence is the theme of our upcoming conference in St. Paul,

"How do I grade Quentin's work, when the ideas are good, and well-expressed except for those damn little idioms?"

Minnesota—be there). We've got other articles, of course, that I can't fit into this neat scheme, but I guess it's safe to say that the future and/or the trap of correctness is on a lot of people's minds.

During the last change of millenia, everybody in Europe worried that the world would come to an end, right when Auld Lang Syne changed the nines to zeros. When nothing, or at least nothing really cataclysmic, happened, they went around building hundreds of churches as a kind of pay-back to God, who loomed in their minds, obviously, as the Great Extortionist. I suppose we're a little more sophisticated in our devotion these days, but we really should think of something to do. Like recycle.

Ed Gueble
Editor

Adult academic program utilizes computer-assisted instruction

by Mary B. Negri

The Adult Academic Program of the Robbinsdale Area Schools in Minnesota has entered into a cooperative agreement with the district's media services department and the staff of an elementary school, regarding use of the district's sixteen-station computer lab and Computer Curriculum Corporation (CCC) software. The adult program has assumed none of the more than $80,000 cost in hardware or software, nor has it made any contribution to the cost of space or utilities. Because technology options for adult literacy progams are often too costly for program budgets to absorb, this kind of partnership may represent a cost-effective solution for many programs.

In Robbinsdale, Adult Basic Education (ABE) monies have funded the salaries of two teachers and two childcare paraprofessionals, the costs of supplementary instructional materials and a few games and toys, and costs related to publicity and outreach. Outreach has been directed primarily to parents of elementary-school children, to residents of nearby low-income housing, and to local Aid to Families with Dependent Children (AFDC) recipients.

"The system's specifically adult-oriented coursework includes basic reading, language arts, math, English-as-a-Second-Language, and GED preparation."

CCC's integrated computer-assisted instruction offers a range of courseware to meet the needs of elementary and secondary students. Much of this courseware is not inappropriate for adults. *(See "Five 'Big' Systems and One 'Little' Option," in our Spring 1989 issue, and "Computer Curriculum Corporation Update," in our Summer 1989 issue.)* The courseware utilizes speech, audio, and state-of-the-art graphics. The system's specifically adult-oriented courseware includes basic reading, language arts, math, ESL instruction, and GED preparation. In the ESL instruction adults hear definitions and early instructions in their first language—Spanish, Mandarin Chinese, Arabic, Italian, Hmong or Japanese. Adult learners will also find potentially useful courseware on algebra topics, keyboarding, critical reading skills and computer literacy. The integrated system monitors the performance of each learner and individualizes instruction, practice and tutorial interaction. In fact, the system's Initial

con't on page 21

Question & Answer

We get lots of calls with technical, policy and program questions. We take guesses at most of them, but we're easily stumped. Beginning this issue, we will test a question-and-answer forum, hoping that we'll be connecting questions that are important to segments of our readership with expert answers. Please mail or call your tough questions to us, we'll report them in the hopes of inspiring people to return answers. The answers we've printed, of course, may inspire argument, which means we'll be in for *two* new features.

Question: "When is it appropriate to teach keyboarding skills with adult learners? Do I have to teach keyboarding before my student uses the computer for writing?"

—Nancy Mullenax, Seattle, Wash.

Answer: To answer the second part first: Absolutely not! The power of printing your own words, names, or story the first time you use a computer reinforces the power of independent communication. Who cares how slowly or with how many fingers in what position the letters are formed? Print the student's work everytime she writes, even if she is just typing isolated letters; that hard copy is more exciting than any other reward a teacher can devise.

With regard to keyboarding instruction: I recommend introducing a typing software program for independent practice when the student complains that her fingers aren't going as fast as her thoughts. Computer-based typing instruction is comfortable for beginning computer users— it can be limited to 15 or 20 minutes per session and it allows them to measure their progress.

Adult students often see keyboarding as a job skill; however be careful to keep the skill in context: it is a skill that is useful for writing (personal communication and in all curricular areas), not an end in itself.

—Jane Laidley, PCC Inc., San Ramon, Calif.

- **Rich Squitiero**, who works in teacher-training for the U.S. Air Force, would like information regarding IBM 286-compatible computer-based-instruction software that teaches the parts of speech.

- **Peter Mastkopf** of Berkeley, Calif., asks if anyone can recommend Spanish-language basic-skills instruction software? He works on MS-DOS computers.

The 4th Annual Adult Literacy & Technology conference

St. Paul Radisson Hotel—St. Paul, Minnesota

July 18-21, 1990

Early Registration Deadline—July 2, 1990

Activities, Registration & Fees

Pre-Conference Activities
Wednesday, July 18, 1990

Pre-Conference symposia

Indicate first and second choice for AM and/or PM.

AM

Pre-Conference Symposia ❑ A ❑ B $25.00____

or

Site Visists ❑ 1 ❑ 2 ❑ 3 ❑ 4 $25.00____

PM

Pre-Conference Symposia ❑ C ❑ D $25.00____

or

Site Visits ❑ 5 ❑ 6 ❑ 7 ❑ 8 $25.00____

A box lunch is provided if attending both AM and PM sessions. **Pre-Conference registration must be postmarked no later than July 2. No registration postmarked after July 2 will be accepted. NO ON-SITE REGISTRATION FOR PRE-CONFERENCE.**

Please send this completed form (top two-thirds of page, front and back) together with checks payable to: **Minnesota Literacy Campaign**. Mail to:

Cheryl Zaccardi, East Side Learning Center
St. Paul Schools, 740 York Ave., Room 204
St. Paul, MN 55106 1-612/290-8330

We ask that you enclose separate checks for:

- Pre-Conference Symposia/Site Visits
- Technology Banquet
- Conference Registration Membership

For hotel reservations, please fill out and mail form below directly to Radisson Hotel.

Regular Conference Activities
July 19-21, 1990

Registration forms must be postmarked not later than July 2, 1990, to receive the early registration discount.

❑ Early Registration (by July 2, 1990) **Lunch included Fri & Sat.**	AL&T subscriber	$65.00____
	Non-subscriber	$75.00____
	Student	$65.00____
❑ Registration (after July 2, 1990) **Lunch included Fri. & Sat.**	AL&T subscriber	$80.00____
	Non-subscriber	$90.00____
	Student	$80.00____
❑ One Day Registration **Lunch included Fri. or Sat only**		$80.00____

Indicate day attending: ❑ Th. ❑ Fri. ❑ Sat.

Special Events

❑ I plan to attend (no charge): *The St. Paul Foundation Community Forum Series*
Edward B. Fiske, New York Times correspondent
- Presentation
- Reception

Wednesday, July 18, 1990

❑ *Technology Banquet, $30.00 ea.*
Friday, July 29, 1990
❑ *Chicken* ❑ *Beef* ❑ *Fish*
*Number of tickets*_____ *X $30.00 = total* $____

❑ Please check if interested in Mississippi River Cruise

Hotel Accommodations, Registration & Fees

Please fill out completely (both sides), detach and mail to: Radisson Hotel, St. Paul, 11 E. Kellogg Blvd., St. Paul, MN 55101. Please make check or money order payable to Radisson Hotel St. Paul. Please do not send currency.

Organization: **ADULT LITERACY AND TECHNOLOGY CONFERENCE** Dates: **JULY 18—21, 1990**
Please reserve accommodations for:

Name _____ Company _____

Address _____

City _____ Province/State _____ Zip _____

Sharing Room With _____ Number of Persons _____

Signature _____ Phone Number (___) _____

The 4th Annual Adult Literacy & Technology Conference

Refund Policy

The tickets for the banquet, pre-conference symposia, and education-site visits are non-refundable after July 15, 1990 unless AL&T cancels the event. Requests for **registration refunds** must be received in writing by July 31, 1990. A fifteen dollar ($15.00) processing fee will be deducted from the amount of the refund. **NO REFUNDS WILL BE ISSUED AT THE CONFERENCE.**

Special Needs

- ❑ Please check if you are **disabled** and require special accomodations. You will be contacted to discuss what arrangements can be made.
- ❑ Please check if interested in **day care** arrangements during the conference and we will contact you.
- ❑ Check here for **Vacation in Minnesota** information.

Registration form

Please print or type

Full Name _____

Mailing Address _____

City _____

Province/State _____ Zip _____

Day Phone (_____) _____

Evening Phone (_____) _____

Name-Tag Information

_____
Name

_____
Institution

_____
State

Hotel Accommodations, Registration & Fees

Check-in: 3:00 p.m./Check-out: 12:00 p.m.

Arrival Date ____ - ____ - ____ Arrival Time _____ Departure Date ____ - ____ - ____

Accommodations will not be confirmed without a check for the first night's deposit, or a credit card number to guarantee your reservations. You will be charged for the first night if reservations are not cancelled 48 hours prior to arrival.
Credit Card #_____ ❑ Amex ❑ Diners Club ❑ VISA ❑ MC Expiration date_____

Please check preferred accommodations:

❑ $65.00 Single ❑ $75.00 Double ❑ Non-smoking ❑ Smoking

Rates are subject to a 6% Minn. sales tax and 5% St. Paul hotel tax.

If rate requested is not available, nearest available rate will be assigned. There is an additional $12.00 charge for the third or fourth occupant in each room. Rates are subject to applicable taxes. No charge for children under 18 occupying the same room as parents.

Laidley, Part II

con't from page 9

Update to the information age classroom: using the computer as a tool. Irvine, CA: Franklin, Beedle & Associates.

Dalton, David W., and James F. Watson. (1986) *Word Processing and the Writing Process: Enhancement or Distraction?* January. Paper Presented at the Annual Convention of the Association for Educational Communications and Technology. Eric Document 267 763.

Dyson, Anne H. (1981, October) "Oral language: The rooting system for learning to write." *Language Arts*, 58 (7), 776-784.

_____, & Genishi, C. (1983, September) "Research Currents: Children's language for learning." *Language Arts*, 60 (6). 751-757.

Engberg, R. E. (1983, Summer) Word processors in the English classroom. *Computers, Reading and Language Arts: A Teaching Resource.* (pp. 17-19) Vol. 1, No. 1.

Fitch, J. E. (1985, August) *The effect of word processing on revision and attitude toward writing.* Unpublished master's thesis. National College of Education. (ERIC Document Reproduction Service No. ED 272 898)

Graves, Donald H. (1982, February) "Research Update: How do writers develop?" *Language Arts*, 59 (2), 173-179.

_____. (1983). *Writing: Teachers and children at work.* Exeter, NH: Heinemann.

Green, John O. (1986, January) "Computers, kids and writing: An interview with Donald Graves." In T. R. Cannings and S. W. Brown (Eds.), *The information age classroom: The computer as a tool* (pp. 144-147). Irvine, CA: Franklin, Beedle & Associates.

Haas, C. (1987, February) *Computers and the writing process: A comparative protocol study.* Communications Design Center Report No. 34. (Carnegie-Mellon University). Paper presented at the Conference on Computers and Writing. Pittsburgh, PA. (ERIC Document Reproduction Service No. ED 281 219)

Hailey, J. (1978) *Teaching Writing K Through 8.* Instructional Laboratory, U.C. Berkeley.

Hennings, D. G. (1981, January) "Input: Enter the word-processing computer." *Language Arts*, 58 (1), 18-22.

Jarrett, J. (1981) *Meaning to Mean.* Unpublished dissertation. University of California, Berkeley.

Kurth, R. J. (1986, April) *Using word processing to enhance revision strategies during student composing.* Paper presented at the annual meeting of the American Educational Research Association. San Francisco. (ERIC Document Reproduction Service No. ED 277 049)

Lacy, Dan. (1983) "Reading in an Audiovisual and Electronic Era." *Daedalus: Journal of the American Academy of Arts and Sciences.* Winter issue.

Loban, Walter. (no date) *Writing across the curriculum.* (unpublished monograph).

Long, Roberta, and Laurie Bulgarella. (1985) *Language Arts.* February, V 62, n 2.

Marcus, S. (1986, January) "Computers in the curriculum: Writing." In T. R. Cannings & S. W. Brown (Eds.), *The information age classroom: The computer as a tool* (pp. 138-140). Irvine, CA: Franklin, Beedle & Associates.

Moffett, J., & Wagner, B. J. (1976) *Student-centered language arts and reading, K-13: A handbook for teachers.* Boston, MA: Houghton Mifflin, & Co.

Moursund, David. (1985) *The Computer Coordinator.* Eugene, OR: ICCE/University of Oregon.

Papert, Seymour. (1980) *Mindstorms: Children, computers and powerful ideas.* New York: Basic Books.

Peterson, D. (Ed.) *The intelligent schoolhouse: Readings on computers and learning.* Reston, VA: Reston Publishing Co., 1984.

Riel, Margaret. (1983, July) "Education and ecstasy: Computer chronicles of students writing together. *"The Quarterly Newsletter of the Laboratory of Comparative Human Cognition*, 5 (3), 59-67.

Rockman, S. (1986, March) *The impact of California's Computer Contribution Act* (AB 3194). Briefing Paper. San Francisco, CA: Far West Laboratory.

Rosenblatt, L. (1976) *Literature as Exploration.* New York: Noble and Noble.

Thomas, Irene D. (1985) *Uses of the Computer in Teaching the Composing Process.* Annual report of the NCTE Committee on Instructional Technology. Eric Document, no. 265 571.

Turkle, Sherry. (1984) *The second self: Computers and the human spirit.* New York: Simon and Schuster.

Vygotsky, L. S. (1934, 9th ed. 1962) *Thought and Language.* Cambridge: M.I.T. Press.

Newsbriefs

con't from page 2

take place Oct. 29-November 3, in Salt Lake City, Utah. Contact AAACE at 1112 16th St. N.W., Suite 420, Washington, DC 20036, 1-202/463-6333.

AAACE is also sponsoring seminars on **"Intergenerational Literacy: A Practical Approach to a More Literate America"** and **"Developing Workplace Literacy Programs: What Works, Why it Works, and How to Do It,"** September 13-14 in Bethesda, Maryland. For further information, contact AAACE as indicated in the preceding item.

The Fifteenth World Conference of the International Council for Distance Education will be held in Caracas, Venezuela, Nov. 4-10. Contact Armando Villarroel, by mail at the Oficina de la XV Conferencia ICDE, Apartado 797, Caracas 1010A, Venezuela, or phone 58-2-573-1346 or 58-2-571-0186.

CCC

con't from page 19

Placement Motion will evaluate a learner's functional skill level during the first ten lessons and adjust the level of instruction accordingly.

The Robbinsdale project also features "The Reading Network," a new addition to CCC's selection of adult-oriented programs. "The Reading Network" incorporates speech, color and graphics. The program provides individualized instruction in basic skills as well as applied and integrated reading. Adult learners at the Robbinsdale site, particularly those coming to literacy instruction from the Limited English Proficiency population, have benefited greatly from this program: reading tasks are very realistic in the applied reading strand, and the vocabulary emphasizes words that are important for an adult to know. The program currently offers roughly 60 hours of material for low-level functional readers, and will be expanded in the near future to enable those readers to attain a skill level appropriate for GED instruction.

Adult learners and teachers at Robbinsdale have consistently had positive experiences with the CCC system. The teachers have found the system to be easy to enter and to control. They've used the reports on learner achievement to adjust individual plans, and they've generated print copy for relevant take-home work. The learners have found the system user-friendly, have enjoyed the instructional activities, and have appreciated the immediate feedback, the audio and the graphics. No enrolled student has objected to the elementary-school environment of the computer lab.

Mary B. Negri teaches in the Robbinsdale School District in Robbinsdale, Minnesota. This article has been excerpted from the Minnesota Connections Newsletter. For information about CCC's integrated courseware phone 1-800/227-8324.

Adult Literacy & Technology Newsletter

Subscription Offer

You are invited to subscribe to a unique periodical—the newsletter of the Adult Literacy & Technology Project. The project, comprised of literacy practitioners and theorists, and representatives of business, labor and government, is the first program in the nation to dedicate itself to research and advocacy of the uses of technology to aid in teaching literacy and other basic skills to adults. Please join our effort to create a more literate, productive and humane world.

Our four-issue newsletter subscription is based on the calendar year. To receive all four 1990 issues, complete and mail this form with the appropriate subscription fee (see below). Back issues will arrive with the next current issue.

Subscription benefits include:

- the AL&T Newsletter
- participant discount at the AL&T Conference
- discounts on selected AL&T publications

Subscribers at the Patron rate will also receive mention in the Newsletter, and inclusion on the Adult Literacy & Technology Project's Patron List.

Please check appropriate boxes: ❑ New Subscription ❑ Renew Subscription ❑ Reader survey only

Subscription Category	**Annual fee:**
❑ Individual	$15.00
❑ Non-Profit Agency	$15.00
❑ Business	$50.00
❑ Patron	$500.00

I would like to order from AL&T:

❑ The Guide to Recommended Literacy Software ❑ (member) $13.50 ❑ (non-member) $ 15.00

Total enclosed: $_____.00

Please make payment in U.S. currency or equivalent. California residents add 7% sales tax.

Name _____

Title _____

Agency _____

Phone _____

Address _____

City/State/Zip _____

Completed form and checks payable to PCC, Inc. (fiscal agent for the AL&T Project) should be mailed to:

Adult Literacy & Technology Project
PCC, Inc.
2682 Bishop Drive, Suite 107
San Ramon, CA 94583
415/830-4200
Attn: Mahre Mackay

Technology Consultants
Adult Literacy and Technology Project

The Technology Consultants in the Adult Literacy & Technology Project have been active for the last three years, providing assistance to hundreds of literacy practitioners on a wide range of questions such as how to begin using technology, how to select software and hardware and how to find software for special-need learners. Requests for information have come from practitioners at many kinds of agencies: ABE, Laubach, LVA, universities, government, business, labor, community colleges and corrections.

The TCs, chosen for their literacy-related technological expertise, are 'on-call' for free or low-cost consultation, and for presentations at conferences. Please keep this list for reference.

■

June Eiselstein
The New Britain Public Library
20 High Street
New Britain, CT 06051
(203) 224-3155 or (203) 223-7667

Region Served: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

■

Christina Jagger
Laubach Literacy International
1320 Jamesville Avenue
Syracuse, NY 13210
(315) 422-9121

Region Served: New York, New Jersey, Puerto Rico, Virgin Islands

■

Donald Egner
Private Consultant
5806 Pine Hill Drive
White Marsh, MD 21162
(301) 335-2060

Region Served: Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia

■

Judith Lipscomb
Mississippi Office for Literacy
500 High Street
2000 Walter Sillers Building
Jackson, MS 39201
(601) 359-2673

Region Served: Alabama, Florida, Georgia, Kentucky, Mississippi, Louisiana, North Carolina, South Carolina, Tennessee

■

Deborah Young
UAW Ford/EMU Academy
7164 Camelot Drive
Canton, MI 48187
(313) 487-6138 or (313) 459-9217

Region Served: Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

■

Ruth Hollenbeck
Adult Education Department
Moberly Area Junior Colleges
Moberly, MO 65207
(816) 263-4110

Region Served: Arkansas, Oklahoma, Iowa, Kansas, Missouri, Nebraska

■

Mike Hill
Blackfeet Community College
P.O. Box 819
Browning, MT 59417
(406) 338-5441

Region Served: Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming

■

Jane Nissen Laidley
PCC, Inc.
2682 Bishop Dr., Suite 107
San Ramon, CA 94583
(415) 830-4200

Region Served: Arizona, Northern California, Nevada, American Samoa, Guam, Trust Territory of the Pacific, Hawaii

■

Lucy MacDonald
Chemeketa Community College
P.O. Box 14007
Salem, OR 97309
(503) 399-5093

Region Served: Alaska, Idaho, Oregon, Washington

■

Sheila Shaw
4343 Ocean Boulevard
San Diego, CA 92113
(619) 230-2800

Region Served: Southern California, New Mexico, Texas

People's Computer Company, fiscal agent
Adult Literacy & Technology Project
2682 Bishop Drive, Suite 107
San Ramon, CA 94583

Non-Profit Organization
PAID
San Ramon, CA
Permit #218

The Adult Literacy & Technology Newsletter

Spring Issue 1990

INSIDE

Video Graphics on the Amiga

David Thornburg on Teaching

Teri Turner on "Images of the Future"

Wordprocessing and Teaching Writing, Part II

Hyperapplications for Literacy

The Corvus Hard-Disk LAN, and more . . .

The Adult Literacy & Technology Project benefits from the gracious and consistent support of the Gannett Foundation.

Adult Literacy & Technology Newsletter
©1990, PCC, Inc.
Vol. 4, No. 2 · Spring 1990

Instruction *a la mode*: Types of learning in CAI

by Larry Statan

Serving on a computer advisory committee at the school where I teach, I became involved in decisions about the college's software purchases, and the allocation of space and personnel for computer services. Meeting with the other committee members, I got the distinct feeling that instruction was not high on their lists for these resources. As a teacher who would like to see his students working in well set-up labs, and as an educational software designer, I prepared a presentation—a sales pitch, really—on the role of computer-assisted instruction (CAI), ultimately lobbying for support for remedial and ESL students as part of a campus-wide CAI system.

con't on page 10

CONTENTS

Network shopping tips	1
Types of learning	1
Pushing the envelope	2
Technology at the UN World Education Conference	3
Hyperterminology from Hell	5
America Online: Talk is cheap	6
State libraries meet on literacy	9

Network shopping tips

by Tom Pier

Pick up any computer magazine these days and you'll see at least one article on networking. Most of these articles deal with new hardware, and presuppose that readers already know a great deal about computer networks. Computer users who aren't so confident about the nuts and bolts of networks may make costly or inconvenient mistakes when purchasing network hardware and software. To make matters worse, the salesman throwing around words such as "Mbps," "CSMA-CD," "throughput," and "IEEE802.3" may not understand them adequately either. To keep from wasting hard-to-get funds on networks that don't work or that you don't need, learn what networks are all about.

Computer networks can be a good answer to several problems in multi-computer environments. Networks makes it possible to share expensive peripherals such as modems, scanners, CD-ROM drives, and large databases between computers. And as many literacy programs are learning, software costs can be lower by buying a multi-user site license instead of several copies of the same software. Running a network also makes it easier to update software—instead of finding every copy all you have to do is update the network copy. Networks also make it possible for evaluators to critique work done by students on-line rather than having wait for printed copies. On-line literature is expensive both in purchase cost and disk space, and the cost per megabyte for storage goes down as the size of the device goes up.

Before buying a computer network,

"Most network packages provide training...that is quite valuable and necessary—what's more, you've paid for it in buying the network—so it's important to ensure that the information gets into the right hands."

determine who the system administrator is going to be. Every network needs a system administrator to manage routine and emergency maintenance on hardware and software. If the administrator is chosen before the network is purchased, that person can become familiar with all possible options and the reasons behind the final choice. In addition, most network packages provide training seminars and system education, training that is quite valuable and necessary—what's more, you've paid for it in buying the network—so it's important to ensure that the information gets into the right hands. Don't fret about hiring additional staff, however, because systems administration for small networks shouldn't require more than a few hours work per week.

The network checklist

After choosing an administrator, sit back and determine what demands you'll want to place on the network. How many people will use the network? And how many of those are likely to use it

con't on page 12

Terminal self-defense

Thanks for your patience with our irregular publication schedule. We've had a few bouts of bad luck and overcommitment., and we're struggling to get caught up for the year. Please overlook any signs of strain.

The June issue of MacUser magazine carries a cover story on Extra-Low Frequency radiation (ELF), asking the question "Is your computer slowly killing you?" Well, I know mine is. The writer, however, suggests that by keeping 28 inches between us and our monitors, we'll be relatively safe. My mother (sooner or later every writer gets around to Mom) proposes keeping a baseball bat around the office as a measuring device, and in case the blood-thirsty little machines get uppity. Try it. In those moments of frustration, you'll want the upper hand.

Ed Gueble
Editor

Pushing the envelope:

University-level remediation and multimedia technology

by Ed Gueble

Literacy and technology. Clearly, it is the position of this newsletter that the two go hand-in-glove, a defensible combination that I'm charged with exploring, if not upholding. It's only logical that teachers turn to technology—our widespread educational failures cry out for improved instruction, and technology is where we're turning these days for everything from biomedicine to improved beer-commercial graphics. We've already exploited secularization, urbanization, industrialization, democratization and the other discoveries of the last 400 years for all they're worth, and then some. We have to try something.

On the other hand, the result of that turning-toward is that functional literacy and basic skills are increasingly tied to the use of technology. Square roots is dead, long division is dead, calculators rule. What has reawakened interest in people who can't read? Is it people not working, people without job skills? Maybe, but bar-code scanners and electronic cash registers and gas pumps have *lowered* the level of skills required by some jobs. Is it that people lack the diversified cognitive skills required by the technology industry? We're getting warmer. Is it that people lack the skills necessary to process financial information? Yes.

The voice evolving in this newsletter, over the course of the last year or so, as a result of my contact with literacy providers, program adminstrators, adult low-level readers, many, many articles, and my boss, is that of an ongoing yammering for the deployment of technology as a tool for the liberalization of literacy education: telecommunications, word processing and other applications software, hypertext, scanners and digitizers, the simple management-efficient networked computer labs. These developments are generally presented as allowing closer attention to the learners' real interests and abilities, as reshaping basic skills education to make it more personal, convenient, exciting, and ultimately successful than the adult learners' earlier forays into the educational system.

But where do you draw the line?

Or more to the point, where do I draw the line? I was recently privileged to see

con't on page 15

Newsbriefs

The AL&T Newsletter would like to recognize the life and contributions of **Dr. Robert Noyce**, who died in May, 1990. Co-inventor of the integrated circuit, founder of Intel Corporation, Dr. Noyce consistently drew attention to both the individual and societal importance of education.

Educational Activities, Inc., announces its new product, **Talk to Me**, (MS-DOS only) an interactive voice-response utility that allows students to listen to their own voices, evaluate their responses to the drills, and correct their pronunciations. Cost: $399 ($207 for Tandy version). Contact Educational Activities, P.O. Box 392, Dept. R, Freeport, NY 11520.

The Institute for the Study of Adult Literacy has developed **Real Opportunity for Advancement and Development (R.O.A.D.) to Success**, a print- and computer-based course which helps drivers develop reading skills needed to study for and pass the federally legislated Commercial Motor Vehicle Driver's License exam. For information, call 1-814/863-3777.

Keymaster Design Group has developed Macintosh-based **Manager, Assistant Manager,** and **Planner versions 2.0** to aid school districts in the development of IEP's, tracking staff caseloads, monitoring timelines for efficient completion of assignments, and service delivery. To order, call 1-203/342-1896.

The American Association for Adult and Continuing Education's annual conference, held this year in Salt Lake City, Oct. 31 to Nov. 2, will feature more than 200 concurrent sessions, a halloween ball, Olympic site visits and, of course, the shared interests of 1500 adult ed professionals. Contact AAACE at 1112 16th St. N.W., Suite 420, Washington, DC 20036, 1-202/463-6333.

The *Adult Literacy and Technology Project* appreciates the gracious and consistent support of the **Gannett Foundation.**

Talk of technology at the UN World Education Conference

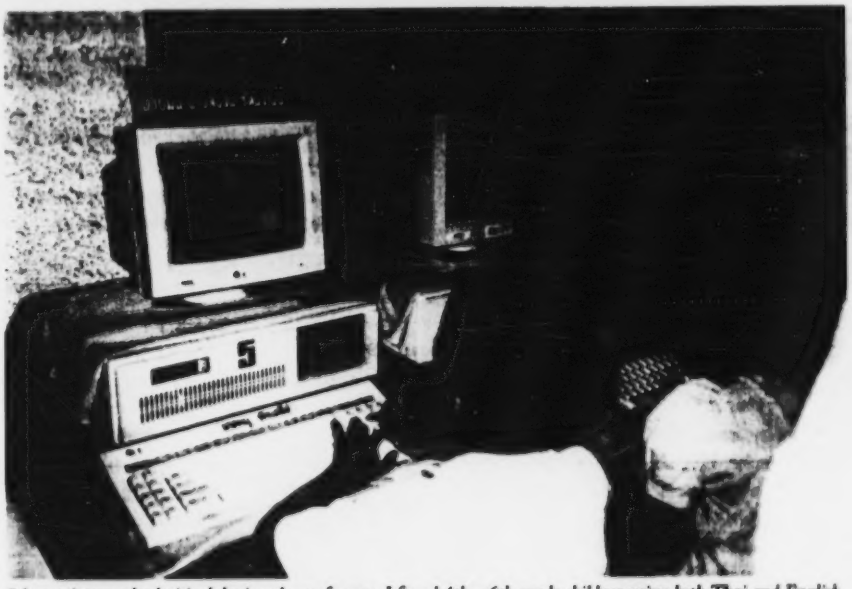
by Martha A. Lane

The influence of technology was clearly acknowledged at the World Conference on Education for All (WCEFA), held this March in Jomtien, Thailand. The dominance of technology in today's world and its potential as an educational tool appears in connection with numerous agenda issues.

The goal of the conference was to finalize a "Framework of Action," a document providing guidelines by which nations and regions, governments and non-governmental organizations (NGOs) could work to bring basic education to all by the year 2000. In half a dozen regional conferences in the months prior to WCEFA, representatives of governments and NGOs had hammered out crucial agenda and representation questions; these contributions were reshaped at the conference into two official documents: "Framework for Action to Meet Basic Learning Needs" and "World Declaration on Education for All." Technology is mentioned as a key issue in both documents.

The following passage from the "Framework" acknowledges that a realistic welcoming of technology into worldwide education work will involve extensive long-term effort and present as many questions as answers:

> *The quality and delivery of basic education can be enhanced through the judicious use of instructional technologies. Where such technologies are not now widely used, their introduction will require the selection and/or development of suitable technologies, acquisition of the necessary equipment and operating systems, and the recruitment or training of teachers and other educational personnel to work with them. The definition of a suitable technology varies by societal characteristics and will change rapidly over time as new technologies (educational radio and television, computers, and various audio-visual instructional devices) become less expensive and more adaptable to a range of environments.*
>
> *The use of modern technology can also improve the management of basic education.... New possibilities are emerging which already show a powerful impact on meeting basic learning needs, and it is clear that the educational potential of these new possibilities have barely been tapped. These new possibilities exist largely as a result of two converging forces, both recent by-products of the general development process. First, the quantity of information available in the world...[and, second]...the new capacity to communicate among the people of the world.*



"At a primary school visited during the conference, I found 4th—6th grade children using both Thai and English software. There were about a dozen computers in this classroom. This was a demonstration school, located in a remote rural area."

This recognition of "new possibilities" and the problems of identifiying "a suitable technology" for a particular context was reflected in the way many high-priority issues were addressed. A strong consensus among the participants, who represented approximately 150 countries, defined a number of priorities, the highest being the need to provide basic education to all women and children. Other priorities included the increased need to understand basic education as the foundation upon which the development of individuals, communities and nations depends; the need to help developing nations resolve their high national debt crises; the need to shift major governmental spending from military to educational purposes; and the need for basic education—rather than simple literacy—for all.

One of the most articulate pleas for broadening the meaning of basic literacy was sounded by Jane Bowyer, Consultant to the Education Sector, UNESCO. Her thesis has as many ramifications for basic literacy in this country as in more educationally disadvantaged regions. Her presentation was based on "Scientific and Technological Literacy: Edu-

con't on page 4

Conference

con't from page 3

cation for Change," a special study she developed for WCEFA (available from UNESCO). She argues, in part:

> *What should be the main ingredients of a basic education to prepare children and adults for a world that is constantly evolving? Skills in reading and writing, although necessary, are certainly not sufficient. It is proposed that scientific and technological literacy (which includes literacy in mathematics) form a cornerstone in the basic education of every person. Understanding science, mathematics and technology is one essential means of enabling individuals to continue and to control their own education in areas that directly affect them, their community, and the world. Access to scientific and technological literacy must begin in the early primary years and extend through non-formal adult learning for those who have not had the opportunity for formal schooling. It must be available for all: females, males, poor, rich, rural, urban, and persons from both developing and developed countries. Special priority must be given to two populations: the poor and rural people, particularly those who live in developing countries, and females in all parts of the world....*
>
> *Traditional basic education with an emphasis on the 3 "R's" (reading, 'riting, and 'rithmetic) appeared to be sufficient for providing basic access to learning for living in the past. But in today's world, citizens want, need, and deserve more from their basic education. The rapid pace of technological change...by definition implies the rapid obsolescence of knowledge and the need for constant retraining of the work force.... An expanded vision of basic education must be conceptualized and implemented.*

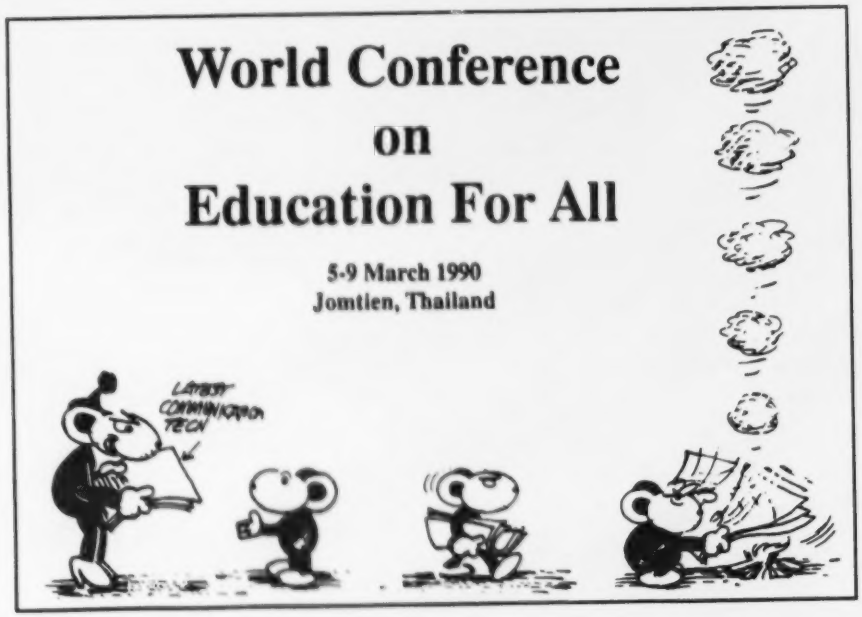
While conferees agreed upon the importance of educational technology in providing education for all, there was disagreement as to whose technology should be used and how technology uses should be prioritized. Numerous presenters, for instance, stressed the need to develop technologies suitable to each country or area, while others stressed the need to export educational technology from industrialized nations to all parts of the world.

A. K. Jalaluddin, Director of India's National Council for Educational Research and Training, acknowledged that basic education includes the learning of such skills as communicating meaningfully, reading, writing, computing, thinking critically and acting rationally, but insisted that it must also include the skill to "manipulate the context" in which one lives. He observed that technological innovations change the very context in which such innovations originate. He wrote in a distributed draft of a paper titled "Towards Learning to Learn" that:

> *The present technological revolution is qualitatively different from the industrial revolution of the eighteenth cent[u]ry which gave rise to mechanisation and the assembly-line model of modernisation and development. The present high technology revolution, using information and knowledge as the basis of technological transformation, is bringing about a process of decentralisation through miniaturisation, interfacing and networking of technologies and work stations and fragmentation of labour skills and positions....*
>
> *As a welcome coincidence, the above developments permeate and set in motion internal imperatives for change in the content, pedagogic process and organisation of education....*
>
> *There are positive indications that the questions related to quantity, quality and equity [of education] can be more democratically and effectively handled not by shunning technological innovations but by adopting them according to the local conditions and with a long-term perspective.*

Presentations at the conference indicated that technological innovations are indeed being adopted in educational settings around the globe. In Belize, for example, a recent study featured computer-aided diagnosis of reading skills,and a study is underway to determine the impact of the use of Speak & Math (a hand-held, electronic math learning aid by Texas Instruments, Inc.) on pupil achievement in "the early grades of disadvantaged primary schools". In Grenada, a WICAT system providing 30 workstations is used to deliver two to five hours of computer-assisted instruction in language arts and math to primary school children. In Jamaica, the PLATO system was tested

con't on page 11



Hyperterminology from Hell

by Michael Swaine

Hyperception *n* An altered state of consciousness induced by reading hypertext and characterized by the inability to focus on single, distinct ideas. Cognitive astigmatism

Hyperemptory *adj* Exceptionally abrupt, as a direct hypertext link to a random location in RAM

Hyperennial *n* Any topic of which computer journalists annually announce that this is The Year, such as Unix, networking, OS/2, AI, multimedia, desktop fill-in-the-blank, or hypertext

Hyperenthetical *adj* Characterized by being a digression within a digression (within a digression...). The variation in spelling is not arbitrary. The Indo-European root from which the "par" of parenthetical derives is spelled with an e, and means to grant reciprocally, with the idea of getting something back. The Indo-European tradition that one ought to be able to get something back, or just to get back, from a digression, perished with their culture

Hyperformance *n* Multidimensional ineptitude

Hyperfume *n* The smell of hype

Hypergonomics *n* An academic's idea of a catchy term

Hyperhaps *n* Goings-on in hyperspace

Hyperimeter *n* A multidimensional boundary separating the obvious from the irrelevant

Hyperiodical *n* Any nonlinear serial publication; a journal that appears regularly but not regular

Hyperipatetic *adj* Lost in hyperspace

Hyperipheral *adj* Lying beyond the hyperimeter, as opposed to ordinary lying

Hyperiscope *n* A hypertext navigational aid used when maps and browsers fail; in earlier days called a "core dump."

Hypermanent store *n* 1. The locus of data protected from accidental deletion by virtue of being lost; hypertext's contribution to the architecture of write-only memory. 2. a bouffant boutique

Hypermute *v.t.* To rearrange hypertext links randomly. To engage in data annealing

Hyperparallel *adj* Skew

Hyperpendicular *adj* Skew

Hyperpetrate *v.t.* To implement a hypertext system

Hyperpilosity *n* A measure of the hairness of a hypertext system

Hyperplex *n* A movie theater of the 1990s. If—as has been suggested by no less eminent hypermedia experts than Ted Nelson and Paul Heckel—the future of the personal computer can be read on the silver screen, we should expect the workstation of 1999 to run more expensive software with less content and more flash, and to display it on six tiny monitors

Hypersian *n* Persian poet Omar Khayyam, who wrote one of the oldest known non-linear documents (later linearized by Edward Fitzgerald as the Rubaiyat) and who left this advice to readers of hypertext:

> Drink! for you know not whence you came, nor why;
>
> Drink! for you know not why you go, nor where.

Hyperu *n* The Andes

Hyperversion number *n* A complexity measure for hypertext documents

Hypervert *interj* A greeting from one hypertext system designer to another

con't on page 7

AL&T Steering Committee

Eunice N. Askov, Ph.D.
Professor of Education/Director
Institute for the Study of Adult Literacy
The Pennsylvania State University

Bob Clausen, Ed.D.
Literacy Technology Consultant
Monmouth, Oregon

John Fleischman (Chair)
Administrator, Media Services
Correctional Education Division
Hacienda La Puente Unified School District
La Puente, California

Jane Nissen Laidley, Ph.D.
Executive Director
PCC, Inc.
San Ramon, California

Martha A. Lane
Adult Literacy Consultant
Santa Barbara, California

Tony Sarmiento
Assistant Director
Education Department, AFL-CIO
Washington, D. C.

Antonia Stone
Executive Director
Playing to Win, Inc.
New York, New York

Terilyn C. Turner, Ph.D.
Asst. Director,
Adult Literacy & Special Needs
St. Paul Public Schools
St. Paul, Minnesota

Publisher
PCC Inc.

Editor
Ed Gueble

Art Director
Kristin Prentice
Sphinx Graphics, 1-415/848-4305

Associate Editors
Ellen Margolis

Printing
E&C Offset, Berkeley, California

Fullfilment
San Francisco Mail Service

©1990 PCC, Inc.
2682 Bishop Drive, Suite 107
San Ramon, CA 94583
1-415/830-4200

America Online: Talk is cheap

by Ed Gueble

Coverage of the electronic literacy chats hosted by Bill Reed and Jose Cruz on America Online is overdue. Reed's perseverance and initiative, along with his long-standing interest in literacy, have led to the creation of an ongoing forum with the potential to ease communication among literacy professionals and volunteers working on all levels.

Begun in early 1989, the chats, involving about 10 participants per session, take place every Monday evening at 6:30 p.m., Pacific time. The participants may receive a prepared piece on the featured topic, after which they fire off comments or ask questions, engaging in more or less real-time discussion via America Online's forum connection.

America Online is managed by Quantum Computer Services, which supports Reed through the donation of free online time in exchange for his services as an Education Forum Consultant (EFC). Reed, who is retired (see accompanying story), says his major funding concern for the literacy chat project is "trying to keep the phone and postage rates within my budget." In addition to contacting potential presenters, he sends online transcripts of chats to more than 20 individuals and organizations, including Betsy Brand, Assistant Secretary for Adult Education in the Department of Education, via America Online, AppleLink, and CONNECT.

Cruz, Coordinator for the San Diego County Literacy Network, co-hosts the chats, augmenting Reed's industry and commitment with professional expertise.

The literacy chats grew out of Reed's creation and maintenance of an adult literacy message board on Apple's in-house electronic-mail program, AppleLink, in August, 1988. The message board, now run on America Online, includes folders on current events and news in the adult literacy field; tips and ideas for tutors; books, reports and periodicals; and discussions of software.

Featured presenters and topics on America Online have included Judy Koloski, Executive Director of AAACE; Judy Rauner, Director of Volunteer Resources at the University of San Diego, on the role of college students in literacy work; and Lucy MacDonald, Program Chair for Learning Assistance at Chemeketa Community College in Salem, Oregon, on selecting appropriate literacy software.

An offshoot of MacDonald's involvement is soon to bear fruit: she and Chip Carlin, Director of Information for Literacy Volunteers of America (LVA) in New York State, have never met face-to-face, but have both participated regularly in the literacy chats. In July they will offer their presentation, "Telecommunications for Adult Literacy Providers," discussing LVA's America Online and state-sponsored electronic bulletin board link-ups, at the 1990 AL&T conference in St. Paul.

Titles of literacy chats scheduled in the next few months include "The effect of cultural differences in education," and "The progress and problems of workforce literacy projects."

America Online, a commercial service run by Quantum Computer Services, can be accessed by anyone with an Apple II-family or Macintosh-family computer (Mac plus or better). A free America Online program disk can be ordered from Quantum. The $5.95 monthly fee entitles members to one hour of "non-prime-time" usage. Additional time is billed at $5/hour, non-prime time, and $10/hour, prime time. (Prime time extends from 6:00 a.m. to 6:00 p.m. in the user's time zone.)

America Online provides access to a panoply of forums, shareware and freeware, and merchandising efforts. To order a free program disk, contact:

America Online
1-800/227-6364
Quantum Computer Services, Inc.
8619 Westwood Center Drive
Vienna, VA 22182

Bill Reed can be reached at 109 E. Fortuna Street, Chula Vista, CA 92011, 1-619/426-1677 or 426-4295.

Electronic contacts: America Online—EFC BILL; AppleLink—LIT.REED; CONNECT—WAREED.

Keyboarding off

A technical writer before he retired in 1989, Bill Reed is "happy that my time is freed up now for my great love, literacy education." Even if he had not retired to this consuming work, Reed's story would have been noteworthy as an example of lifelong learning and education against the odds.

Born in 1927 in Los Angeles, Reed left with his mother when he was about 12, wandering through the country from Oregon to Iowa. "School was kind of difficult under the circumstances," he says. "When the war broke out—World War II—I was 14 and working, living in Kansas where you didn't have to go to school. All the young men left for the war, and I did too."

In 1959, back in Southern California, driving a bus during the day and going to school at night, Reed received his high school diploma. "I have to look back to this one teacher in night school," he says. "He really opened up the field to me, gave me the feeling that there was more I could learn."

Which he did. Over the next 23 years Reed received a community college A.A., a Bachelor's degree, and a Master's of Business Administration from the National University in San Diego. "It took me six or seven years to get out of junior college," he says, "but after that I was lucky—Computer Sciences, the company I worked for, started paying for my education."

"The Role of Literacy in the War Against Poverty"

From the America Online Literacy Chat

June 11, 1990

BCS Frank: *Does seem lit. ed. works best when focused on what's most important to the student in his/her life.*

Marti2: *YES! immediate application, immediate relevance, immediate improvement of a bad situation.*

LitLucy: *I always remember the student calling me to teach him how to take the written test for truck driving. He DIDN'T want to learn to read.*

MFJpsy: *I don't think that's the approach smaller communities are able to use, sounds more expensive than simple tutoring....But much better.*

BCS Frank: *Fritzi, every community has to deal with the problems...*

LitLucy: *Smaller communities need coalitions even more than larger ones.*

BCS Frank: *It's just a choice of how you want to pay the bills.*

"A real problem is trying to convince traditional programs of the need to teach to the STUDENT's needs..."

Marti2: *A real problem is trying to convince traditional programs of the need to teach to the STUDENT's needs...rather than teaching to what TUTORs think it would be nice for students to learn.*

BCS Frank: *But here in Mass. we're watching chunks of concrete fall off bridges because of "deferred maintenance." Same thing happens with social programs.*

Marti2: *I wish more US literacy programs were linked directly to economic development projects...I've worked with one in VA that was a sewing co-op...a great model.*

BCS Frank: *Local adult learning center just got layoff notices for some of its staff who coordinate volunteers. Not, in my humble view, a cost-effective measure.*

Marti2: *BCS Frank: why the layoffs? at least, what reason did they give?*

BCS Frank: *State gov. & most every local gov in Mass in deep financial problems, up to eyeballs....lowest bond rating of 50 states, unbalanced budget, etc.*

Monty12: *Students will tell you what they want to learn, if you don't meet their needs they don't return.*

into the sunset

Not sated in his quest for knowledge, Reed took up the pursuit of a doctorate. When this chase stalled, however, he turned his clearly limitless energies to the education of other disadvantaged adults, with a fervent commitment to literacy education. In 1983, he began using a computer in one-on-one tutoring of adult learners.

He now offers computer-related consultation to the National City Public Library Project READ, a program of the California Literacy Campaign. For the newly formed Adult Education Outreach and Technical Assistance Network, also funded by the state, Reed provides system installation and training to new users in the area south of Los Angeles, and he is preparing a user guide for the project.

As President of the Chula Vista Apple Users' Group, he has spurred members on to involvement in literacy efforts so vigorously that over half the group's members are now involved as volunteer tutors or consultants. Members of the group now publish a literacy newsletter. He also serves on the Disabled Student Program and Services Advisory Committee of the State of California's Southwestern Community College District. Fortunately for the rest of us, people such as Reed—however sound their faculties otherwise—hear someone say "retired" and confuse it with "inspired."

Hyperterms

con't from page 6

Hypuree *n* Hypertext with the links removed

Hypurgative *n* Garbage collection for hypertext

Hypurpose *n* A noble ambition worthy of significant financial backing but incapable of being expressed in terms that mere linearists can understand

Hypursuant *adj* In accordance with in a higher dimension, as in, "Hypursuant to your directive that the staff dress more formally while in the office, I am taking Friday afternoon off to go to the beach"

Michael Swain is editor-at-large of Dr. Dobb's Journal, where these hyperjinks originally appeared. *© Michael Swain, 1990*

BEST COPY AVAILABLE

REASONING SKILLS ON THE JOB™

Employers must have workers who can use their heads.

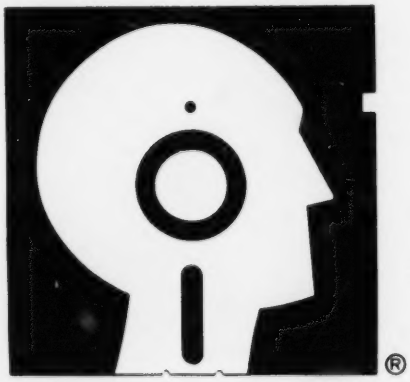
Their corporation's future depends on it.

Perhaps no other workplace basic skill is as important as the ability to use one's head to solve work-related problems. From entry-level positions to middle and upper management, employees must be able to critically think and solve work-related problems.

No longer are the three Rs enough. Employees must be able to apply what they have learned and be able to critically think and solve work-related problems. We at The Conover Company have been working for almost ten years on developing our work-related basic skills programs.

REASONING SKILLS ON THE JOB™ is the newest program in a series known as our WORKPLACE LITERACY SYSTEM™. Other programs within this series are LEARNING ACTIVITY PACKETS (LAPs), MATH ON THE JOB™, ENGLISH ON THE JOB™, and SOCIAL SKILLS ON THE JOB™.

For free information on our reasoning skills program, as well as other programs in our WORKPLACE LITERACY SYSTEM, call or fill out the coupon below.



For a free catalog, fill out and return our coupon today.

20 ROJ

Name _____

Position _____

School _____

Address _____

City _____ State _____ Zip _____

Phone _____

The Conover Company

P.O. Box 155 Omro, Wisconsin 54963 800-933-1933

State libraries meet on literacy

by June Eiselstein

To prepare their recommendations for the second White House Conference on Library and Information Science, in 1991, state library program staff need to come to a consensus about how state library agencies can help to direct and focus the development of library-based literacy. To further these ends, the first State Library Literacy Forum was held in Alexandria, Virginia, May 20-22.

Participants at the conference were able to interact with their peers and identify models to guide them in the development and replication of successful programs. Issues addressed included the diversity of library-based models, the fragmentation of literacy services at the state level; and the need for greater coordination at the community, state, and national levels.

Speakers at the conference included: Anne J. Mathews, Director, Office of Library Programs, Office of Educational Research and Improvement, U.S. Department of Education; Marilyn Gell Mason, Director, Cleveland Public Library; Donald M. Payne, U.S Congressman, 10th District, New Jersey; Joan Seamon, Director, Division of Adult Education and Literacy, U.S. Department of Education; and Paul Simon, U.S. Senator, Illinois.

Presentations were made on the following topics at the Plenary Sessions: "Motivating Libraries" by Dr. Debra Wilcox Johnson; "Developing Community Collaborations" by Judy Rake; "Family Literacy: What was, what is and what could be" by Dr. Carole Talan, Carol Sheffer and Dr. Debra Wilcox Johnson.

Concurrent sessions were held on the following: "Library Efforts to Support Work Force Literacy," with Roderick Macdonald and Paul Kiley; "Rural Literacy," with Frances de Usabel, Vikki Stewart, Betty Ann Funk, and Sibyl Moses; and "Technology Assisted Learning," with Sara Calloway and myself.

Sara and I had 75 minutes to tell the attendees "everything they always wanted to know about technology and literacy but were afraid to ask". It was an impossible task, made more disheartening by questions such as, "Can my Macintosh run IBM software?" and the reverse. There is clearly a great deal that librarians need to learn about computer-assisted learning. "How to select good software?" was another popular question, along with "What do you use as selection tools?", "How do you get a computer?", "What funding is available?", "How much staff time does it take to run a project?", "Does PALS work?", and "What other videodiscs are available after PALS?"

A conscientious effort must be made on the part of the library community to help our country strengthen its basic skills. If this effort isn't made our libraries will become increasingly elitist institutions serving fewer and fewer people. Let's face it, we have a vested interest in developing readers. All discussion of what libraries are doing about technology and access to information is moot if we have a constituency that lacks the educational skills to understand this information and determine how it is relevant to their lives.

The Alexandria conference strengthened the national library literacy network by building a community for literacy among state consultants. Participants left with a fuller understanding of the challenges of the nineties. Libraries must continue to adapt and grow in their traditional roles as providers of information, but must consider their role as an enabler for community members to take full advantage of their resources. We must continue to promote literacy among both current and potential constituents.

June Eiselstein is an AL&T Technology Consultant, and a librarian at the New Britain Public Library, 20 High Street, New Britain, CT 06051.

S·O·L·U·T·I·O·N·S

An Integrated Computerized Literacy System

Easy to Use

Proven Successful for ABE/ESL and Literacy Training Levels 1-4+

"We retain all adults we can get on the computer. We lost 90% of those tutored [with books]."
Woody Dinstel
Literacy Coordinator
Mid-Mississippi Regional Library System

"Educational Activities provides an academically excellent product."
GAIN Learning Center Staff
El Cajon, CA

Cost Effective

For Information About This and Our Other Valuable Programs, Write or Call...

EDUCATIONAL ACTIVITIES, INC.

Box 392 Freeport, NY 11520 800-645-3739 (NY) 516-223-4666

CAI

con't from page 1

I was guilty, it turns out, of assuming the other members understood what CAI is and something of the importance of computers as an instructional tool. I quickly discovered that a registrar, a library director, a graphic artist and a business manager have radically different ideas about the typical, and appropriate, uses of computers. I decided to make a stand; the college's raison d'être is to instruct students, and computers should be made available to supplement college classes.

In preparing my formal presentation to clarify the nature of instruction using computers ("making is a stand" of course immediately led to more work, as a kind of punishment for romanticism), I was struck by the relationship between the way we, as thinking beings, acquire information, and the kinds of activities computers offer, especially in terms of instructional software. I chose to address this relationship, and through it the importance of CAI, as distinct from computers and software used solely for accounting, word processing, graphics creation and so on. The presentation process led to a real clarification of my own approach, and has given me new ideas about my own software. In pursuit of this clarification, and aided by long-established educational theories, I have broken CAI into four modes of learning: exploration, cognition, reconstruction and repetition.

Exploration: exploration could also be called discovery, which in either case is the mode in which the user is free to wander and make associations between bits of knowledge. Paradoxically, in terms of the computer and software, this mode is "passive" rather than "active." Unless other modes are combined with the exploratory mode, the program is not interactive—the computer doesn't score the learner's choices or offer pedagogically oriented prompts. The user is responsible for supplying interest in the information and the activity necessary to gain the information. If users are motivated and receptive in this mode, they incorporate information and that can be exploited elsewhere.

A program such as Voyager II, for the Macintosh, exemplifies the best of this mode, allowing the learner to move around the solar system and alter time and scale at will. The user, and not the program, is active in the learning process. Using Voyager II, I found watching the earth and moon spin slowly away from me to be extremely moving; my experience was the result of associations and insights I brought to my encounter with the program.

I am currently working on an exploration-mode literacy program, which I've named Fonograf, that lets the learner amble through the weirdness of English with the same freedom and the opportunity to learn by association. My hope is that learners will get caught up, wanting to uncover more facts and connections by moving around within the program: Where is Peru? Who was Geoffrey Chaucer? How many planets are in the solar system? How many sounds can you get from the letter a? We all hear that high school students have an appalling lack of basic facts about the world around them; software using the exploratory mode of learning is aimed at enhancing their store of these basic facts.

The exploratory mode lends itself well to the use of computer peripherals (although both Voyager II and Fonograf require only a Mac plus). Videodisk or CD-ROM disk drives greatly expand the area of exploration, and enable information to be stored as sounds and images. Multimedia CAI is expanding already and will explode in the next few years with the introduction of HyperCard-like environments for MS-DOS computers and "translator" programs increasing software compatibility between different operating systems.

Cognition: In the cognition mode the learner applies prior knowledge or recently gained knowledge to solve a problem. Obviously, information found in the exploration mode may be used to solve a problem in the cognition mode: as a developer, I can accompany any learning environment in which the learner wanders with a game that asks "In this situation, what might be true?" Simple examples of the cognition mode include hangman and alphabetizing exercises, but as the learning environment expands, the types of cognition exercises can become more interesting. In all cases in the cognition mode, the learner constructs a response without a model, but with an expected correct answer based on a body of acquired knowledge. This mode challenges the user to get seriously involved with the information and the exercise, demanding both wit and knowledge to arrive at a solution. Cognitive-mode programs are active, unlike programs in the exploratory mode, because they direct the learner to a specific problem and demand a specific and assessible answer. Many cognitive-mode CAI programs include scoring devices which track the number of questions tried and the learner's success rate, giving the learner and the teacher a good idea of the learner's involvement and success.

Reconstruction: The reconstruction mode differs from the cognition mode in that the program relies on models of correct answers; prior knowledge accordingly plays a less important role in this mode. Once a learner is exposed to a correct model, the computer presents a fragmented version of the model or an analogous case; the learner may respond via typing or speaking, or clicking on or dragging over the available letters or other parts to reassemble the correct version on the screen. Many different exercises can be generated in this mode, including multiple-choice, cloze, fill-in-the-blank, and other types of tests. Model/response exercises of this sort make use of the computer's ability to show correct and incorrect responses, tally a learner's score, control access to the model, and provide hints as to the correct answer. These exercises follow the traditional ESL teaching pattern, presentation-practice-activity, in which the teacher demonstrates an example and asks the student to rebuild the example,

and then to manipulate the example in an exercise. CAI programs in the reconstructive model often lend themselves to authoring efforts by teachers, who can easily tailor the information presented or the exercises provided for a particular class or text. When learners are successful in the reconstructive mode, cognitive-mode exercises in which models are not provided may be used to reinforce or test the learner's mastery of the information or skill.

Repetition: Repetition or drill is an essential, though often unpopular, learning mode. The ultimate goal of repetition is the physical or mental conditioning of the learner, in order that information or skills can be used consistently and more or less automatically. Typing programs and my own Accent Improvement software, which allow users to repeat simple but important tasks until they reach an acceptable level of facility, typify the skills that are appropriate for CAI in the repetitive mode.

In this mode, learners must be encouraged to accept a lot of incorrect answers, and even correct answers, before becoming proficient. The computer is the ideal medium for learning in the repetitive mode, because no teacher can respond so tirelessly and accurately. Programs that allow learners to turn off the sound or use headphones sometimes alleviate embarassment that may accompany work in the repetitive mode. The key, however, is to find or develop software that provides repetition while varying the parameters of the exercise enough to sustain the learner's motivation long enough to effect conditioning (as opposed to the information acquisition which is the main goal of the other modes).

No form of instruction is successful if it doesn't tap or spur the learner's motivation, and no software will engage a learner if the program is poorly designed. All instructional programs rise or fall on the basis of their content and form: the program must have a clear and consistent interface, and engage the user interactively. The four modes, to whatever degree they are present in a given program, must be presented within a logical, attractive and essentially transparent framework that enables communication to take place.

After preparing my sales pitch to the committee, I found that the moment of my presentation had been pushed to the bottom of our ever-crowded agenda. I blurted out all of my news and views, including a software demonstration, in less than ten minutes. But the presentation went well enough, and my colleagues now realize that CAI software is distinct from software used to tally semester units or run spreadsheets. As new, more flexible and powerful hardware and software emerge, that distinction will no doubt grow even more clear.

Mr. Statan may be contacted at LinguaTec, Inc., 111 West Evelyn Ave., Suite 306, Sunnyvale, CA 94086, 1-408/746-3901.

Conference

con't from page 4

for two months in 1986, to teach math skills to trainees in a job-training program.

While most industrialized countries included in their exhibits and presentations mention of governmental commitment to improving literacy of their citizens, such mention of U.S. programs was disappointingly lacking. One notable exception was a report on "Organized Labor and Workplace Education in the United States," prepared by Anthony Sarmiento, Assistant Director of the AFL-CIO's Education Department. The report stressed the need for employers to provide training to non-managerial and non-supervisory workers, who are "the vast majority of their employees." Most training now goes to managers and others already possessing basic literacy skills. Sarmiento also stressed that "Workers and their unions must be involved from the very beginning in all aspects of designing and implementing a workplace education and literacy program. Unions will not accept a role limited to recruiting learners."

"Workers and their unions must be involved in all aspects of designing and implementing a workplace education and literacy program"

Indeed, the urgency of breaking open externally imposed roles, of moving beyond what was once accepted as not only satisfactory but actually progressive, was expressed throughout the conference. The imperative for such forward movement was also articulated in the second of the conference's two official documents, the "World Declaration on Education for All," which states:

> *...Today, there is genuine progress toward peaceful detente and greater cooperation among nations. Today, the essential rights and capacities of women are being realized. Today, there are many useful scientific and cultural developments. Today, the sheer quantity of information available in the world—much of it relevant to survival and basic well-being—is exponentially greater than that available only a few years ago, and the rate of its growth is accelerating. This includes information about obtaining more life-enhancing knowledge—or learning how to learn. A synergistic effect occurs when important information is coupled with another modern advance—our new capacity to communicate.*

Martha A. Lane is an adult literacy consultant and a member of the AL&T Steering Committee. She attended WCEFA as an official observer, attached to the delegation of the World Council of Churches, Geneva, Switzerland. She can be reached at 601 E. Anapamu Street, #231, Santa Barbara, CA 93103.

Networks

con't from page 1

will use at any one time? How will these figures change in three years? What kind, size, and complexity of programs will the network need to run? In the simplest case, the network will only need to run a copy of a program; in a complex case, the network might need to support various stations processing graphics? How many printers will there be on the network? Do the users need to communicate with each other? How much disk space does each user require for their files? How long a delay can the users tolerate in getting a response to a command? Where will this network be used? How far apart will the terminals be? Will some of the computers be in another room? Another building? How long can the network be down for maintenance or repair? How much outside support will the users and administrator need? How much can you afford to spend? By answering these questions you will be in a good position to determine what kind of network is needed.

When you know who the system administrator will be and what you need your network to do, you can get busy learning what all the salesperson is trying to tell you, and more important, not tell you. Because speed is the crucial issue, every advertisement for a computer network will say that they are the fastest network around: ads dealing in millions of bits per second will list figures such as "10-Mbits/sec," "1-Mbit over twisted pair," or the oh-so-cryptic "10Mbps on 50W coax." (A bit is the smallest piece of information a computer can handle, either a one or a zero.) Of course the manufacturer is trying to tell you his or her network is fast. But all signals traveling down a wire move at the same speed, a little less than the speed of light; the speed they are describing, then, is the signal rate of the network. Thus "10 Mbits/sec" means that this product has a maximum signal rate of 10 million bits per second. The higher the signaling rate, the faster data is transferred, if all else is held equal. The faster the signaling rate, however, the more expensive and restrictive the equipment will be. Higher signaling rates require hardware that is less susceptible to "noise" since the "faster" signals are more easily "corrupted." (There are some other reasons for the expense and fragility of faster networks, but these are best left by us both to the electrical engineer).

Often hardware manufacturers advertise products that allow faster transmission

"The higher the signaling rate, the faster data is transferred, if all else is held equal. The faster the signaling rate, however, the more expensive and restrictive the equipment will be."

rates over the same cable their competitors use. While it may be possible to do achieve these rates, it is important to understand that there are physical limits to the signaling capacity of any cable that no piece of equipment, no matter how advanced, can surpass. Basic cable types that you are likely to encounter are commonly known as "twisted pair," coaxial cable or "coax," "thick-Ethernet," and optical fiber. The first three types are simply copper wire in various arrangements, while the third uses glass to transmit light, rather than electricity.

Twisted pair is the cheapest and simplest cabling method. Two wires twisted around each other, twisted pair is not unlike common telephone wire. Coaxial cable is very similar to the sheathed cable used for cable television; do not, however, try to use common television cable for your network cabling, as the electrical characteristics of network coaxial cable and television cable are dissimilar. Thick Ethernet consists of four pairs of wires that are insulated and shielded from one another and then placed in a shielded outer sheath, with a resulting outer diameter of about a third of an inch. Optical fiber is a thin piece of specially prepared glass encased in a core and then sheathed in plastic. There are as many types of fiber as there are types of copper wires, but they all use light rather than electrical impulses to transmit information.

Any transmission over wire cable experiences losses and distortions due to the cable itself. The overall effect of these properties is called the characteristic impedance of the cable. Characteristic impedance must be carefully measured and tested by every cable manufacturer. Often the only factor in the price of cable of similar types is how much care the manufacturer took in maintaining a constant characteristic impedance throughout the cable length. As a cable user you don't need to concern yourself too much over the meaning of these values, nor do you need to figure out if a lower or higher characteristic impedance value is better for your network. But you do need to be sure to use cable that matches throughout your network, both when the cable is installed and when you expand the network.

When electrical impulses traveling down a cable at nearly the speed of light get to the end of a cable, they don't just fall off the end. If a system isn't properly installed the impulse will be reflected back down the wire in the opposite direction. This unhappy event is known as reflection, and is eliminated in a good network by "termination" of the cable. Termination, basically, adds a device that matches the characteristic impedance of

"When electrical impulses traveling down a cable at nearly the speed of light get to the end of a cable, they don't just fall off the end."

the cable, with the effect of canceling out the reflection. When a cable is hooked up to a network card plugged into a computer, the needed termination is performed inside the card. If you

disconnect the cable and leave it hanging unused, this termination is lost, which may create problems for the rest of the network. (If you mix cables of different characteristic impedances reflections will occur, but we all know now not to do that.)

The first limitation on the performance of any network cable system, then, is the cable itself. Proper installation and maintenance of the system will eliminate most of the associated problems. I have not seen a manual for a computer network system that failed to discuss the type of cable required and procedures for handling cable installations. (This brings us to the most important rule of computer-use in general and computer networks specifically, READ THE MANUALS CAREFULLY.)

The environment around the computer network also can, and in fact will, cause problems for the network. Most of us have seen the problems that an electric motor will cause to electric signals. Try turning on a mixer beside a television set. All the little lines on the picture screen are the result of electrical interference, just one type of noise that will effect the quality of transmission on the network. And noise is hard to eliminate in any modern building. Each type of cable tries to minimize the effect of noise by shielding the cable with insulators, with the amount and quality of the insulators affecting the price of the cable. Twisted pair has the least amount of the shielding, while coaxial cable has more effective methods. Thick-Ethernet has the most complex and effective shielding methods and thus is the most expensive. With any of these kinds of network cable, try to avoid running the cable near transformers and fluorescent lights and do not run the cable close to other electrical wiring.

Fiber optic cable allows for signalling speeds that cannot be achieved with metallic cable, and fiber optics are impervious to electrical interference. As you might expect, fiber optic cable is relatively expensive. It is also difficult to splice, a problem which is complicated by the fact that there are few standards regarding connectors and cable types. At the moment, in my opinion, fiber optics is just not practical from a cost standpoint. Unless you are operating your network in a very unstable electrical area, such as a factory, don't worry about fiber optics.

"Unless you are operating your network in a very unstable electrical area, such as a factory, don't worry about fiber optics."

Methods of operation

Granted that the details of network operation are not very interesting, but the ways in which networks operate effect how users will judge network productivity; because only one user can 'talk' on the network at any given time there must be a method for deciding who gets to talk. There are two basic methods, or protocols, for network operation. While there are countless dialects of each method the basic characteristics of each method hold for their variants, allowing for some basic comparisons.

One method is known as token passing, resulting in a "token ring" network. The network server passes a token among members of the network in order. The token is a signal to the network member (commonly refereed to as a node); receiving the signal, the node decides if it has anything to transmit and if it does it transmits what it needs to. After the node is done transmitting it 'releases' the token to the next node on the network. If a node does not need to use the network it simply lets the token pass.

The second method is Carrier Sense Medium Access-Collision Detection (CSMA-CD). In simple terms this scheme works by having each node that wants to transmit on the network 'listen' to the network. When a node that wants to transmit 'hears' a silent line, the node sends out a request-to-send packet. If the node receives acknowledgement that it is free to send, the node begins transmitting its data. If two nodes send out request-to-send packets at the same time the packets will collide. When packets collide all the nodes trying to transmit back off, then wait a random amount of time before sending again. Once a node is cleared to send, all other nodes must wait, so a collision will occur only during the request-to-send dialog.

The respective theoretical advantages of these methods are clear. The CSMA-CD method is called non-deterministic, because nodes are not guaranteed a transmission time. In general, CSMA-CD works best to control small networks, because CSMA-CD has less system-overhead; in other words, less of the network's hardware, software and storage space is used in management. The token-passing method is called a deterministic method, because each node gets a chance to transmit as its turn comes up on the node list. When there are ten or more nodes on a network, the token-ring set-up theoretically allows users to access the network somewhat faster. In reality, however, each system has its more complex characteristics.

Token passing does allow each user to transmit in turn; however tokens get lost, or extra tokens get on the network, or nodes go off the net. These "features" require that a token-passing network have a lot of computerized system maintenance. Because the costs per unit (say, hard-drive storage space) go down as the scale goes up, this extra maintenance is most apparent in smaller networks. On the other hand, CSMA-CD systems tend to overload when there are lots of users because there are more frequent collisions as more users try to get on the network at the same time.

Traffic patterns are what really determines how well each protocol will work for your network. If most users transmit infrequently, because they stay in one

con't on page 14

Networks

con't from page 13

program and save their work infrequently, for instance, a CSMA-CD system will function well even when there are many users on the network. If the users are often accessing many network-shared assets (files, printers, modems), the CSMA-CD protocol will become much less efficient as more users are added. If each user must be able to get on the network at will (we are talking milliseconds here, but sometimes these delays are important) a token protocol is conclusively indicated.

The typical context for a CSMA-CD system is an office setting, since the typical users there access the network to retrieve a file and then work on the file on their own system for a relatively long period of time. Token passing systems are used frequently in factory settings, where machinery itself must communicate with the main system fairly often for short periods of time. On IBM-compatible systems token passing has been the accepted standard. Each Apple Macintosh, on the other hand, comes with a built-in CSMA-CD system known as LocalTalk.

When shopping, ask your network vendor whether the system uses distributed processing or a dedicated server.

"If each user must be able to get on the network at will (we are talking milliseconds here, but sometimes these delays are important) a token protocol is conclusively indicated."

The advantage of the distributed system is that every computer on the network can be used as a node, saving money insofar as no computer is dedicated strictly to network operations. A dedicated server, then, is a computer used only for network administration, which will be required by most network software designed for all but the smallest network. A file server—a special computer designed for system administration—provides more administrative speed and power than a general-purpose computer employed as a dedicated server.

For a network with more than four nodes a dedicated system is recommended. When shopping for dedicated-server network software you should see if the nodes can communicate with other nodes without going through the network server. This option will increase potential communication speed between users. (If there is no reason for users to be talking to each other much, don't worry about this option.)

You should have some grasp at this point as to why buying a network is so complicated—there are literally thousands of options. Fortunately, there are only a handful of viable options for any one set-up and pattern of use. The real goal of a network should be to maximize throughput and minimize response delays; once you've analyzed the needs of your users and determined the most likely traffic patterns, the appropriate options will become apparent.

Selected vendors

For IBM-compatible systems, Novell NetWare dominates the network options. NetWare is written only by Novell, but suitable hardware can be purchased from any number of manufacturers. Make sure that the hardware you purchase has been tested and certified for "NetWare compatibility" by Novell, which performs very thorough and rigorous testing on all hardware that it approves. If you buy a Novell-certified product you will receive a reliable product.

For Macintosh computers, the choices are still more limited. AppleShare, by Apple Computer, is the only plausible token-ring software choice right now. AppleShare must be purchased from an authorized Apple dealer, and in this case, you are acquiring a top-of-the-line product at a fair price.

But the first factor to examine is the speed needed on your network: if you are planning a small network you can use the hardware built into every Macintosh and run a CSMA-CD network. If you decide that faster speeds are needed in that network, all that is required is an Ethernet-style adaptor for each computer. This adaptor can be internal or external hardware, with or without a co-processor, but be sure in either case to buy the extra hardware from a third-party source, whose prices will be cheaper than Apple's.

If you are going to use the built-in LocalTalk system, do buy the connectors from Apple, as the third-party alternatives for low-cost connection systems are second rate. Apple invented LocalTalk, and they have engineered a high-quality product in their connectors that is unduplicated by third parties. Apple did not engineer Ethernet; their version features adaptors at an inflated price for a marginal product.

A few final words of encouragement and caution: when buying a computer network think about the future. As the network gets used, the desire to use it will increase. Plan for future growth, don't buy a system that you will need to replace in a year. Ask reasonable questions, but understand that most computer salespeople will not be able to give good answers. When you don't understand an answer, don't feel as though you're the source of the problem—try to help the salesperson be more clear. And keep looking for salespeople who seem to really grasp computer networks and give honest answers, remembering that any salesperson will try to sell what they have in the store. Get help whenever you can, and don't stop asking questions.

Tom Pier is presently completing graduate studies at Brigham Young University in computerized vision systems. He can be contacted care of the AL&T Newsletter.

Remediation

con't from page 2

the first stages of a multimedia writing environment funded as an Apple Classroom of Tomorrow (ACOT), and to speak with three of the project's creators. The project, based in the Department of Education at the University of California, Berkeley, has initially targeted students in Subject A there. These classes offer remediation to incoming students who have not met the minimum writing standard. Students must pass Subject A in two attempts to continue at the university.

Glynda Hull, co-director of the project and a teacher in the university's Language and Literacy Program, says that "We are always looking for ways to help students who haven't traditionally done well in the classroom. When we first learned about multimedia, our first thought was that maybe this could be an empowering tool for them.

"We began with double goals in imagining this system. The first was to help students in 'persuasive writing,' the kind of writing that people do at the university. Our second notion was that we wanted to extend what counts as literate practice in the university, by asking people to consider what a text would be like if it included sound and images and soon."

"That's the way," says Hull's colleague Cyndy Greenleaf, "in which we're pushing the envelope of traditional education."

The project is currently developing a hypertext database of texts, video images, charts and sounds pertinent to Martin Luther King's "Letter from a Birmingham Jail." The letter, written in 1963 while King was awaiting trial for violating segregation laws in Alabama, is included in the Subject A curriculum. Students address the letter as a seminal text in the civil rights movement, and as an example of effective prose.

The multimedia database runs on SuperCard, a hypertext program allowing large-screen displays of multiple windows. The database makes available a wealth of ancillary material: Dr. King himself reading the letter aloud, the letter by eight clergymen to which he was responding, a timeline of the civil rights movement, a map of Alabama, a short video clip of a speech by John F. Kennedy, and other material. Word definitions and relevant history are imbedded as 'buttons' in the text of Dr. King's letter.

SuperCard launches a word processor along with the database, allowing students to flip between the source material and their own essays. A notepad is accessible from anywhere in the database as well.

"We wanted to avoid the *Encyclopedia Britannica* approach, make the database something more than an electronic book" says Owen McGrath, who has done the bulk of the SuperCard programming. "We didn't succeed, or we haven't so far. Eventually, we hope, the different instructors will be able to tailor the program to their own approach."

The multimedia database, in fact, is really only a foundation for two additional components—a kind of 'multiprocessor' that will allow the students to create presentations using the information and tools available on the database, and a 'writing-process modeler' that brings students into contact with good writing and reading practices.

"The centerpiece will be the multimedia processing environment," according to Greenleaf, a post-doctoral fellow with the Division of Education. "Students placed in remedial situations are the last to have access to that kind of technology, so we'd like to turn that model on its head."

I find myself oscillating between my professed support of the liberalizing effect of technology and my dormant, and I had thought dead, techno-fear. I've happened on to this bunch of people who devote their resources to the education of, in their words, underprepared students. They consciously, politically if you will, invite these students to use the apogee of information technology to develop their own work, and I find myself growing increasingly reactionary, watchful for a hint of wrongheadedness, for wagging of the educational dog by its technological tail.

Hull, to the contrary, sees one goal of their project to be the gaining of a greater voice in the creation of appropriate educational technology: "We think it's important not to be driven by the development of technology, but to have a voice in how multimedia is used. The undergirdings of our research are in the classroom.

"We're trying to get a handle on problems the Subject A teachers were facing, the difficulties students were having in their classes. Students had trouble with background information and certain terminologies."

Even on its own, the first part of the project, the multimedia database, does strengthen the link between writing instruction and the teaching of critical thinking and reading skills. Opinions and ideas, the source of any writer's honest urge to write, grow out of knowledge. Critical readings also depend on contextual knowledge that affords recognition of the nuances of words, rhetoric and style, and the specific choices for inclusion and exclusion in presenting a point of view. The database features a recording of a zealot contending that "all people of the South support segregation, because they know that desegregation is specifically against the Bible."

In supplying an overview and concrete fragments of the context in which the letter was written, the database potentially gives a student a degree of mastery over her topic. An analogous mastery is achieved currently in adult literacy education through work on language experience stories (drafts or dictations of stories which are used as a source for word lists, points of grammar, and editing and revising exercises).

I believe in the importance of that mastery as an element in writing education, but I'm still uneasy. Part of me is roused in defense of basic education that is basic, of remediation that is the application

con't on page 16

Remediation

con't from page 15

of a remedy to a malady. The thought of a class of lower-division undergraduates diving into a room full of Mac IIs, each with 4 megabytes of RAM and a hard drive loaded with hypertextual data—all currently available to the project—while struggling to stay enrolled by writing a coherent essay, is beyond exciting.

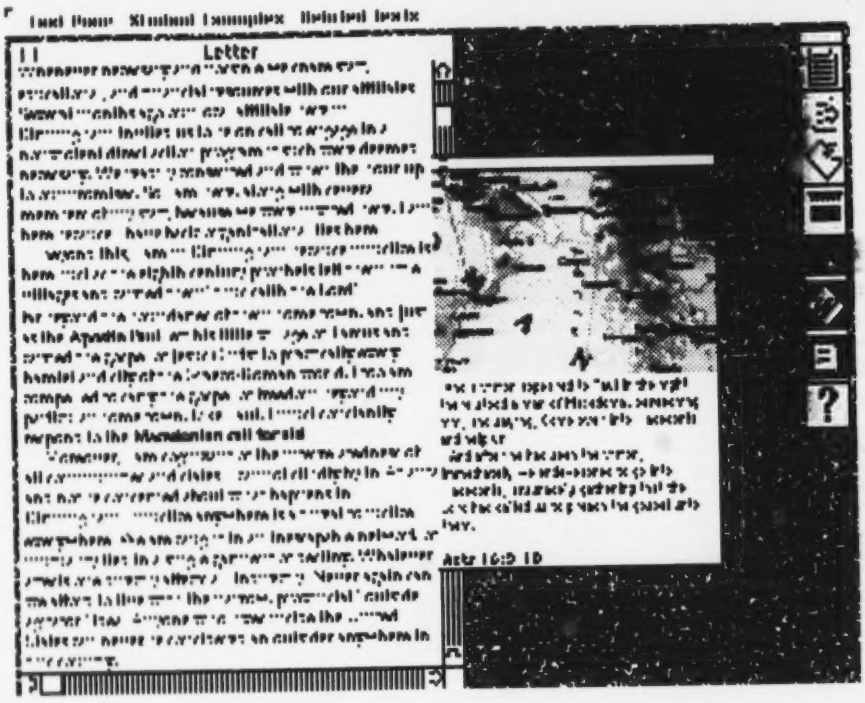
I'm not alone in this opinon. "I think these students need to learn how to write an essay, write a good essay from the ground up," says McGrath, the project's programmer. "I'm a traditionalist, I guess, and I just think it's so easy for this stuff to distract the instruction away from the development of basic writing skills."

I agree I agree I agree. There's no place like home, there's no place like home.

Hull's perspective, however, is more developed than McGrath's or mine. In her recent work with Mike Rose of the University of California, Los Angeles (author of *Lives on the Boundary: The Struggles and Achievements of America's Underprepared*), Hull has stressed understanding students' experiences of school as a nexus of cultural, personal and pedagogic factors. She has also begun to identify the assumptions and classroom practices which lead to the discounting of students' real achievements and potentials. The "undergirdings" of the multimedia proposal include her interviews with teachers and students, analysis of video and audio recordings of classes, and one-on-one tutoring of at-risk students.

(In her writing Hull refers to the Subject A and other remediation efforts as literacy education, although the students involved are often enrolled at prestigious universities. Literacy, and basic skills, can best be seen as dependent on situation, on the skills needed to function, and as a continuum that stretches from the poet Adrienne Rich to my cat, Pinhead.)

"A lot of instruction," Hull says, "in remedial classes is based on what you think students cannot do, there is an assumption at the outset, at least traditionally, that students cannot write whole essays.



"So what happens in these instances is that you imagine a curriculum that only teaches students particular components of literate practice. So they don't get to write whole texts, or they get to do particular kinds of reading, like read this text and understand this interpretation."

Yes, I think, that's what should be happening—having students splice multimedia databases to make an essay is all well and good, but at some point you need to address the fact that they don't know where to put the commas in it, or which prepositions and conjunctions will link the parts. Deficit-oriented teaching. A lesson on the comma, a lesson on 'i before e except after c.'

"In deficit-oriented remediation," Hull says, "Students don't get to engage in the kinds of critical activities that you want to associate with literacy."

And a little reflection leads me to concede that the absence of effective or iron-clad general rules—for pronunciation, for spelling, for essay construction—is precisely what complicates literacy education. (I can remember to this day my fascination upon learning to spell the word 'colonel'; I couldn't understand why people didn't just spell it better.) Good readers recognize words, or so current research would have it, they don't sound them out. And who knows where to put commas when?

Somewhere each successful learner crosses a frontier between the application of borrowed knowledge and real ease in its use. And on the far side of that frontier, functioning, literate people misspell words and mispunctuate sentences regularly as they go about their business and their lives—literacy reallyis a continuum of skills. The task, then, is to guide the learner toward the frontier of easy and functional use without hobbling her unnecessarily with our assumptions about 'the basics.'

Although it will be the last component to be developed, the writing-process modeler seems likely to be most helpful in this regard; language skills consist of

practices which, if correct, will over time become more sharply honed with use.

"We would like students to understand that reading is a very situationally determined activity," says Cyndy Greenleaf. "There are multiple readings of a single text, so we imagine including a text and different interpretations of it.

"Perhaps we'll have somebody talking about an interpretation they've constructed, what they find important and why. Or you might have film clips of writers writing, and talking about the work that they're doing or trying to do."

Films of writers at work don't light up my personal box office, but the benefits of presenting an exploded view of the writing process are clear: with beginning writers, in particular, awareness simply of the trials, erasures and distractions of expert writers can't help but build their confidence in and acceptance of the sometimes warty writing process.

"We're working to counter the thought that there is one right way to approach a writing task," Greenleaf says. "Students have always been in an educational system where right answers are valued, and where that kind of information is what's tested. But writing is not that kind of activity."

What's becoming clear to me is that writing both *isn't* and *is* a right-answer activity. Rules weren't made only to be broken; every act of writing effects a balance between commitment to the thing to be expressed and conformance to the communicative needs and expectations of the intended audience. Hull's research of classroom interaction in college remediation courses suggests that, especially for underprepared students, the ability to conform to the protocols of question-and-answer and accepted writing conventions determines how they are perceived, graded, and allowed to advance by their instructors.

Do we help students to write more appropriately, or do we change teachers' understanding as to what's appropriate?

Hull and Greenleaf foresee the multimedia processor, next in line for development in the tri-partite scheme, leading to students turning in sophisticated video/sound/text documents in completion of their assignments.

"We're imagining the benefits in terms of critical thinking," Greenleaf says. The project proposal suggests that today's students may be better image-oriented thinkers, and communicate better via images and catch-phrases and sound, then they do in more linear and verbal modes. The idea, in part, is to develop thinking skills that eventually translate into better essay practices and success at the university.

Another part of the idea is to loosen the connection between those narrowly defined practices and academic success.

"We're working," Hulls says, "with the assumption that the world will go the way of multimedia." The envelope of traditional education is being pushed from within, by Hull's project, and pulled as well by our accelerating evolution toward a non-linear, image-trafficking culture.

As evidence, Hull adds that they're "already finding that in business reports aren't just put on paper, there's also a hypertext version so a person can select different pathways through the information. The ACOT reports to the rest of Apple are done through multimedia."

"Do we help students to write more appropriately, or do we change teachers' understanding as to what's appropriate?"

Ah yes, they've been talking to *those* folks, those premier pushers-on-the-envelope. Most often, when I come in contact with the Apple Computer Co., and particularly their Education Division, I slip back, sweaty with a view of their speedy, image-driven world-to-come, into my techno-fear. Part of my fear springs from the feeling that they are unstoppable, part of it from the knowledge that some of us will get left in the dust. Hell, my friend in the Oakland School District spends her time trying to get her junior high students to sit still long enough to be taught that their lungs are in their chest, not in their feet.

But Hull, Greenleaf and McGrath (however unwillingly) are working to make sure that we—at least some of our at-risk members—don't get left in the dust, that we not only have access to the technology that's coming down the pike, but that our work with that technology is accorded as much importance as our learning of dusty skills and protocols that constrict our thought.

It makes me nervous. On the one hand, in this case, constriction could just as easily be called construction. On the other, however, the notion (it's as yet unsupported by results) that underprepared students may be better able to compete with their peers as image editors instead of word writers could 'push the envelope' of remediation away from injecting students with practices they lack, and toward taking advantage of their abilities and interests.

As Hull has written in a related context, "we have to keep these two perspectives in dynamic tension, see them as elements in a complex dialectic, a dialectic that can lead us to be alert to the ease with which we can make limiting, harmful judgments about linguistic and cognitive ability, the ease with which differences can be ignored or converted into deficits...[W]e need to be vigilant that the very dialectic we want to honr does not degenerate into a kind of bipolar, better-worse scheme that has been so characteristic of our thinking about language use."*

**Taken from Hull, Glynda, Rose, M., Fraser, K.L., & Castellano, M. "Remediation as social construct: Perspectives from an analysis of classroom discourse," a 1990 article, as yet unpublished.*

Adult Literacy & Technology Newsletter

Subscription Offer

You are invited to subscribe to a unique periodical—the newsletter of the Adult Literacy & Technology Project. The project, comprised of literacy practitioners and theorists, and representatives of business, labor and government, is the first program in the nation to dedicate itself to research and advocacy of the uses of technology to aid in teaching literacy and other basic skills to adults. Please join our effort to create a more literate, productive and humane world.

Our four-issue newsletter subscription is based on the calendar year. To receive all four 1990 issues, complete and mail this form with the appropriate subscription fee (see below). Back issues will arrive with the next current issue.

Subscription benefits include:

- the AL&T Newsletter
- participant discount at the AL&T Conference
- discounts on selected AL&T publications

Subscribers at the Patron rate will also receive mention in the Newsletter, and inclusion on the Adult Literacy & Technology Project's Patron List.

Please check appropriate boxes: ❑ New Subscription ❑ Renew Subscription ❑ Reader survey only

Subscription Category	**Annual fee:**
❑ Individual	$15.00
❑ Non-Profit Agency	$15.00
❑ Business	$50.00
❑ Patron	$500.00

I would like to order from AL&T:

❑ The Guide to Recommended Literacy Software ❑ (member) $13.50 ❑ (non-member) $ 15.00

Total enclosed: **$_____.00**

Please make payment in U.S. currency or equivalent. California residents add 7% sales tax.

Name _____

Title _____

Agency _____

Phone _____

Address _____

City/State/Zip _____

Completed form and checks payable to PCC, Inc. (fiscal agent for the AL&T Project) should be mailed to:

Adult Literacy & Technology Project
PCC, Inc.
2682 Bishop Drive, Suite 107
San Ramon, CA 94583
415/830-4200
Attn: Mahre Mackay

Technology Consultants
Adult Literacy and Technology Project

The Technology Consultants in the Adult Literacy & Technology Project have been active for the last three years, providing assistance to hundreds of literacy practitioners on a wide range of questions such as how to begin using technology, how to select software and hardware and how to find software for special-need learners. Requests for information have come from practitioners at many kinds of agencies: ABE, Laubach, LVA, universities, government, business, labor, community colleges and corrections.

The TCs, chosen for their literacy-related technological expertise, are 'on-call' for free or low-cost consultation, and for presentations at conferences. Please keep this list for reference.

■

June Eiselstein
The New Britain Public Library
20 High Street
New Britain, CT 06051
(203) 224-3155 or (203) 223-7667

Region Served: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

■

Christina Jagger
Laubach Literacy International
1320 Jamesville Avenue
Syracuse, NY 13210
(315) 422-9121

Region Served: New York, New Jersey, Puerto Rico, Virgin Islands

■

Donald Egner
Private Consultant
5806 Pine Hill Drive
White Marsh, MD 21162
(301) 335-2060

Region Served: Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia

■

Judith Lipscomb
Mississippi Office for Literacy
500 High Street
2000 Walter Sillers Building
Jackson, MS 39201
(601) 359-2673

Region Served: Alabama, Florida, Georgia, Kentucky, Mississippi, Louisiana, North Carolina, South Carolina, Tennessee

■

Deborah Young
UAW Ford/EMU Academy
7164 Camelot Drive
Canton, MI 48187
(313) 487-6138 or (313) 459-9217

Region Served: Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

■

Ruth Hollenbeck
Adult Education Department
Moberly Area Junior Colleges
Moberly, MO 65207
(816) 263-4110

Region Served: Arkansas, Oklahoma, Iowa, Kansas, Missouri, Nebraska

■

Mike Hill
Blackfeet Community College
P.O. Box 819
Browning, MT 59417
(406) 338-5441

Region Served: Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming

■

Jane Nissen Laidley
PCC, Inc.
2682 Bishop Dr., Suite 107
San Ramon, CA 94583
(415) 830-4200

Region Served: Arizona, Northern California, Nevada, American Samoa, Guam, Trust Territory of the Pacific, Hawaii

■

Lucy MacDonald
Chemeketa Community College
P.O. Box 14007
Salem, OR 97309
(503) 399-5093

Region Served: Alaska, Idaho, Oregon, Washington

■

Sheila Shaw
4343 Ocean Boulevard
San Diego, CA 92113
(619) 230-2800

Region Served: Southern California, New Mexico, Texas

People's Computer Company, fiscal agent
Adult Literacy & Technology Project
2682 Bishop Drive, Suite 107
San Ramon, CA 94583

Non-Profit
Organization
PAID
San Ramon, CA
Permit #218

The Adult Literacy & Technology Newsletter

Spring Issue 1990

INSIDE

Hypertext Possibilities

Networking Shopping Tips

Types of Computer-Aided Instruction

America Online's Literacy Forum

Far Flung Conference Reports

And more . . .

The Adult Literacy & Technology Project benefits from the gracious and consistent support of the Gannett Foundation.

Adult Literacy & Technology Newsletter
©1990, PCC, Inc.
Vol. 4, No. 3 Fall 1990

Learner-centered instruction in the workplace

by Ed Gueble

In his March, 1990, presentation to the World Conference on Education for All, in Jomtien, Thailand, Anthony Sarmiento of the AFL-CIO (see page 3) cited the importance of learner- and worker-centered approaches as the last of six points in his manifesto on organized labor and workplace education in the United States. He then cited a report on a joint literacy project of the United Steelworkers of America and Bethlehem Steel:

"In establishing this program, the United Steelworkers of America and Bethlehem are implementing a shared vision that workers must play a significant role in the design and development of their jobs, their training and education… Experience has shown that worker growth and development are stunted when programs are mandated from above, but flourish in an atmosphere of voluntary participation in self-designed and self-directed training and education."

At the AL&T Conference in St. Paul this July, I heard speaker after speaker—developers, sales reps, and governmental advisors—say that the educational software industry is poised to deliver the programs that teachers want, if only the teachers will state what they want clearly. I heard literacy practitioners say what it is that they want—more flexible courseware, more control, more autonomy for the learner combined with measurements of student progress and learning needs—but the educational software people always seemed to be in another room just at that moment.

"The molding to each imdividual student is quite extraordinary, it's almost infinite."

There *is* agreement about the educational needs of adults in this country, and representatives such as Sarmiento are expressing those needs, but the increasing flow of education dollars into the workplace, pressure for program accountability and measurable results, and the limitations of the current adult education system continue to work against development of learner-centered and learner-driven instruction.

We need to consider what's really possible in workplace remediation. We need to ask what kinds of autonomy are crucial to adult workers, and what freedoms are 'extra' or even counterproductive. But we need to remember that human values and needs can get lost in attention to progress and productivity. The compromise that we fashion in the workplace will influence the programs and uses of technology across all of adult education.

Learner-CCCentered Instruction

The Computer Curriculum Corporation (CCC), a developer of large-scale computer-assisted instructions systems, is posing a challenge to the ideas of scale and intimacy and the roles of teacher and technology in learner-centered instruction. Late in the fall of 1990,

con't on page 10

Closed-captioned TV and ESL instruction

by Ed Gueble

T.V. is the devil, and I had one once. When I saw that I was particularly weak before its temptations, I deported it. No, I don't impose my hardline views on others, but I admit that up here in my ivory/paper tower of literacy education, I frequently see our goal as the creation of a nation of people home reading Alice Walker novels.

However, we must learn to embrace change.

The National Captioning Institute (NCI) has released the results of a study funded by the Pew Charitable Trusts supporting the use of closed-captioned television to augment ESL education. According to Dr. Susan Neuman of Temple University, the study's chief researcher, "Students watching closed-captioned television scored higher on a

con't on page 15

CONTENTS

Learner-centered instruction	1
Closed-captioned TV and ESL	1
An open letter to AL&T	2
At the 1990 AL&T Conference	3
Sarmiento joins AL&T Steering Committee	3
Conference exhibitors	6
Sharing Ideas in Canada	8
Intellimation and Apple to support educational software	9

August 12, 1990

An Open Letter

To: Adult Literacy and Technology Steering Committee

First of all, many thanks for all the time and effort devoted to organizing the recent Adult Literacy and Technology Conference in St. Paul.

The contents and experiences of the conference have raised some serious questions for us concerning the role and direction of AL&T and our use of technology with our students. What is the purpose of the Adult Literacy and Technology organization? At the conference, we were struck by the preponderance of high-end and expensive technology, almost exclusively computers. If we are working together to explore, develop and promote the use of technology in our work, why have we limited our vision to the use of computers?

This is not meant to be a critique of the use computers in our work, although such analysis is needed. There is vast potential, but the technological solution must fit the educational problem and the situation. The temptation is great to always be trying the newest system, to be on the cutting edge, to be looking forward to the promise. But where is the place in this technological wonderland for the rest of us, who don't have access to CD-ROM, laser disks, or new and expensive systems of hardware and software?

We find ourselves disturbed by what appears to be the focus emerging in AL&T. There are ways to make better use of the technologies already at our disposal, and we need to know and share those. The organization will serve us best by representing the whole range of possibilities, not just what is hot, new and often expensive.

AL&T could expand its services by finding ways to encourage and support practitioner/developers working without heavy institutional support; encouraging low-cost uses of technology; providing ways and means for distribution and dissemination of these alternative means and methods; and mediating market and economic pressures that direct and shape what is available.

Can we talk?

Gail Dowling
Michael Hanish
East Calais and Brattleboro, Vermont

Address responses to the authors or to the AL&T Project, care of this newsletter.

Newsbriefs

The Library and Information Technology Association (LITA), a division of the American Library Association, will sponsor the **PALS in Libraries grant program,** in conjunction with IBM. Twelve grants, totaling $320,000, will be awarded to help libraries incorporate IBM's Principle of the Alphabet Literacy System into their existing literacy programs. Deadline for applications is November 1, 1990; to apply, contact the LITA office, American Library Association, 50 E. Huron Street, Chicago, IL 60611-2729, 1-312/280-4270.

The 1990 Literacy Volunteers of America Conference, "Blazing New Trails, Reaching New Heights," will be held November 15-17, in Salt Lake City, Utah. Contact LVA Conference '90, 5795 Widewaters Parkway, Syracuse, NY 13214, 1-315/445-8000.

Educational Computer Conferences will sponsor their **1991 Technology and Reading/Learning Difficulties Conference,** January 31-February 2, at the San Francisco Hilton. Contact ECC, Dept. N, 1070 Crows Nest Way, Richmond, CA 94803, 1-415/222-1249 for registration information.

The International Reading Association's conference on adult and adolescent literacy, **"Launching the Literacy Decade: Awareness into Action,"** will be held March 21-23, 1991, at the Banff Springs Hotel, Banff, Alberta. Contact the IRA at 800 Barksdale Road, P.O. Box 8139, Newark, DE 19714-8139, 1-312/731-1600, ext. 31.

The *Adult Literacy and Technology Project* appreciates the gracious and consistent support of the **Gannett Foundation.**

At the 1990 AL&T Conference

by Ed Gueble

The 1990 AL&T Conference, held in St. Paul, Minneapolis in July, brought together roughly 500 literacy practitioners, 30 vendor/exhibitors, and a variety of outside experts to share opinions on experiences in adult education. Serious times included informed, argumentative, and altogether substantial presentations by the conference's main speakers. Excerpts are reproduced below.

Fun times included cruising on an authentic replica of a paddle wheel riverboat and being accosted at 3:00 a.m. by a noted software developer, who dropped his trousers and demanded that I report on his underwear in my coverage of this year's conference. Boxer shorts, and absolutely stunning—red jalapeño peppers on a white background.

Opinions as to the content and success of the conference vary, of course. Evaluations of the conference by the mass of attendees, overall, have been strongly positive. Gail Dowling and Michael Hanish, on the other hand, have forwarded a letter expressing concerns regarding AL&T which the conference engendered (see page 2). My impression is that the adult literacy and basic skills field, both as a business and as an area of education, is swinging round to follow funding for workplace remediation. As a result of both intent and happenstance, this issue of the AL&T Newsletter reveals some of the tensions surrounding current changes: our article on CCC's 'big' system and news about an educational publishing partnership between Apple and Intellimation are juxtaposed with clear statements about the needs of educators and learners by Anthony Sarmiento of the AFL-CIO and by the Metro Toronto Coalition for Literacy.

In their letter, Dowling and Hanish may be pointing to ways in which the contours of the conference reflected the increasing interest of the educational technology industry and business as a whole. Certainly, their challenge to the AL&T to lead change in the field, and to represent the needs and experiences of established programs, should be seen as serious and welcome guidance for the organization. Other challenges will perhaps emerge from the following excerpts (please bear in mind that these quotes have been stripped from their contexts):

Ted Fiske, Education Editor of the New York Times since 1974, spoke to the St. Paul Foundation's Community Forum as part of the conference opening, drawing parallels between societal trends and the shape which renewal of our educational system must take:

- "Japan has an educational system very nicely geared to their culture; they're homogeneous. We're heterogeneous. One thing the Japanese understand is the importance of education: they have no natural resources, so they have always understood that they live and die by what comes out of their heads. In the United States, now that the 'ecological frontier' has been closed, we are also a country whose resources come out of people's heads. And we are a second-rate country."
- "The root cause of the failure of the system so far, and what is happening in response, is what makes the next decade so exciting.... We've been trying to educate kids for the 21st century with a 19th century institution. At the end of the 19th century, our representatives were faced with social turmoil, the results of an agrarian economy giving way to an industrial economy. People were deathly afraid of immigrants, and of chaos, so in terms of politics, the search for order dominated the period.

"We were, in addition, naïvely

con't on page 4

Anthony Sarmiento joins AL&T Steering Committee

Anthony R. Sarmiento, assistant director of the Education Department of the AFL-CIO, has joined the AL&T Steering Committee. In his analysis of educational policy for the union, Mr. Sarmiento's areas of inquiry include workplace literacy, education and training. In addition to the AL&T Steering Committee, he represents the AFL-CIO on the Literacy Definition Committee of the National Adult Literacy Survey; the GED Testing Service Advisory Committee; the National Board of the Literacy Volunteers of America; and the Technical Advisory Group of the Job Skills Education Program.

Before moving to the union's education department, Mr. Sarmiento was assistant director of its Human Resources Development Institute (HRDI), where he directed national research and demonstration projects in workplace literacy, career-ladder training programs, and establishing centers for displaced workers.

Among Mr. Sarmiento's published work are "Workplace Literacy, Workplace Politics," in the September, 1989, issue of the National Alliance of Business's *WorkAmerica* and "A Labor Perspective on Basic Skills," distributed by the AFL-CIO. *Worker-Centered Learning: A Union Guide to Workplace Literacy*, which Mr. Sarmiento co-authored under a grant from the U.S. Department of Labor, is available from HRDI.

In his presentation, "Organized

con't on page 4

Sarmiento

con't from page 1

Labor and Workplace Education in the United States," given to the World Conference on Education for All during March, 1990, in Jomtien, Thailand, Mr. Sarmiento supported the following six points with citations from current research and project reports:

- **Too many employers are reluctant or unwilling to provide training of any kind to the vast majority of their employees: non-managerial and non-supervisory workers. Workplace education and literacy programs run counter to corporate investment policies that value quick and immediate returns over long-term competitiveness.**
- **Providing education and training to workers is a sound business investment.**
- **Unions in the manufacturing, service, building, and public sectors have expanded worker education and training programs to unprecedented levels.**
- **Workers and their unions must be involved from the very beginning in all aspects of designing and implementing a workplace education and literacy program. Unions will not accept a role limited to recruiting learners.**
- **A critical first step to establishing a workplace education or literacy program is for an employer and union to identify the specific objectives of the proposed program.**
- **Worker-centered or learner-centered approaches are best for both the employer and the employee.**

Sarmiento will be the primary representative of AL&T at meetings of the National Coalition for Literacy, in Washington, D.C. We are very happy to welcome him to the Steering Committee.

AL&T

con't from page 3

optimistic of what science could do, which led us to create a centralized, hierarchical, pyramidal system in response to every problem, which we assumed would give us the single best answer for solving it. In the workplace, we emphasized standardization, and familiar processes as to how jobs get done.

"Schools incorporated those dominant social values into their classroom practices. Students and teachers in our educational system adopted passive attitudes. Learning was not results oriented—no teacher ever lost her job because a kid didn't learn."

- "What are the values that make for getting good grades? To sit quietly, to listen, to think abstractly. But when something goes wrong in the workplace, the first thing your boss says is 'Did you ask anybody for help?' In schools, they call that cheating."
- "Now, we're under enormous pressure to focus on results, in business that means decentralized management, becoming more flexible, creating production circles instead of assembly lines.

"Schools are now subject to the same pressure."

- "After five years of reform under Bill Bennett, national test scores were up a little bit in the lower grades, there'd been a negative effect on dropout rates, and only incremental improvements in education of kids who were already fairly well served. The more farsighted people realized that we had reached a watershed—we could not get anything more out of the system.

"We need to re-think the values underlying the system. We need to teach kids to learn to learn, teach them how to think.

"I would like to argue that this is happening, that we are very quietly transforming every aspect of American public education."

Fiske went on to cite year-round schooling, teachers managing resources, partnerships between parents, kids, and teachers, portfolio-based assessment of student achievement, prenatal nutrition programs, and improved implementation of technology.

- "We're still at an early level in school technology. But when computers were introduced in schools, around 1980, they were primarily used to teach computer literacy. If a teacher taught anything else with them, she would just load the information into the computer. It was still the authoritarian delivery of information.

"Now we see the teacher as the coach with the kid as the worker, instead of the teacher as the worker and the kid as the product. And this approach is reflected most strongly in our use of technology. Now we let 'em learn things the teacher doesn't know."

Panelists' Responses to Fiske:

Terilyn C. Turner, assistant director of literacy and special needs, St. Paul Public Schools

- "It's easy to say we'll move into competency-based learning, without grappling with questions about the time involved. We need at this point to address the custodial role of schools as well."
- "In adult education, emphasis on results is making self-sufficiency the hot idea—it's featured in legislation for welfare reform and in arguments supporting workplace literacy. But self-sufficiency can be a euphemism for discrimination. People who are not immediately able to improve, through remediation, to self-sufficiency can be washed out of the system."

Christy C. Bulkeley, vice president, Gannett Foundation

- "Adult literacy continues to be

ignored by people looking at education, but adult literacy is already taught via individualized and context-based instruction. Instruction in adult literacy is based on the information's real usefulness."

- "We all need to be learning more consistently, or we are going to drown in the information."

John B. Davis, Jr, president emeritus, Macalester College

- "We cannot view the reorganization of schools outside of its social context—reorganization won't be effective until funding is made available to all sorts of enterprises, funding to create a force of competent teachers who are adequately compensated. Without the commitment to improving the student/teacher ratio, we won't have that necessary, one-on-one relationship."

Fiske, in a closing response

- "Change will come because it has to... We have to show that more money will produce results, then the money will come."

Michael Q. Patton, Ph.D., board member and past president, The American Evaluation Association, presented "Back to the future, part IV: Evaluation":

- "Evaluation and adult education are fellow travelers in the information age, they epitomize for me what the information age is about—empowering people through information... The great struggles of the world have been about who will have access to knowledge."
- "Evaluation is a special form of reality testing, helping us find out whether or not what we think is real is in fact real. Ten thousand years ago, when we lived in not-literate societies based on kinship, people had direct contact with everything that was important in their lives. Now we have very little direct contact, we experience the world through filters [such as the media, computer terminals, electoral politics] and it's like we're walking around in a fog... There's been a corruption of our language and our experience, from a reality-testing point of view. Actually knowing what's going on in the world is a challenge."
- "It becomes important to share not only the successes, but to share openly and honestly the things that don't work. Evaluation ought to be part of lifelong learning, that commitment to *learn* from what we do so that we don't repeat mistakes."
- "Accountability tends to be the lowest level of evaluation, it reduces your work to meeting goals, instead of striving for excellence and high-quality learning. Accountability is the political side of evaluation. We need to get over a fear of our own failure, and make evaluation a part of our ongoing developmental activities."
- "Evaluation is associated with hiding, masking, fear, voodooism. And the way that it's often been done has in fact been intrusive, a real hammering. Evaluators need to make sure that the instrumentation is really measuring what the program is doing, without being intrusive."
- "Futurist thinking is contingency thinking, staying flexible because the world is changing very rapidly... People keep looking for the next model, they're using that logical positivist point of view that there should be one right way to do it. I have yet to find one program in any field of endeavor that is the single right way to do it... And what works today will no longer work tomorrow."

Linda G. Roberts, senior policy analyst for the Office of Technology Assessment of the U.S. Department of Education addressed the conference's Technology Banquet:

- "We have learned that the technology alone doesn't solve our problems: unless there is responsive software, the hardware won't work effectively, and we have discovered that the private sector wants to respond, but that the private sector feels that educators don't know what they want. In adult education, the need to open communication with the private sector is even greater."
- "I still run across people who believe that all we need are better machines. Without teachers who can use the technology effectively, we'll continue to see horrible failures. We need to *invest* in teacher training."
- "We all desire to develop the best technology. But if we've learned anything, it's that you don't start with the technology, you start with the needs of the learner."

From a panel discussion of resource development for adult literacy, with representatives of the AFL-CIO, IBM, Apple Computer, the U.S. Departments of Education and Labor, United Parcel Service, the Gannett Foundation, Workforce Resources, Inc., and AL&T:

- "As John Dewey said looking at school desks, 'We want something where the children will learn; these are just for listening.' The problem with technology development has roots all over: Vendors, because they're in competition, are driven into providing a product that yields measurable results. Large-program purchasers buy materials that are usable without training, or in varied situations...."

Anthony Sarmiento
AFL-CIO

"We [funders] do respond to accountability. We are interested in the bottom line. But there are no finites in this field, we need to be not so insistent on assessment in black-and-white terms."

Suzanne Coyne
U.P.S. Foundation

con't on page 16

Exhibitors at the 1990 Adult Literacy & Technology Conference

The success of the conference depends greatly on the attendance of product developers and vendors interested in showing their wares. The costs and effort involved in exhibiting are repaid, of course, when attendees investigate and purchase products. We are happy to make the list of 1990 exhibitors available to subscribers who did not attend the conference. Support these businesses which support the AL&T.

AISI, Inc.
9553 Valparaiso Court
Indianapolis, IN 46268
1-317/875-4085

Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014
1-408/974-8582
Barbara Harvey (mailstop 43N)

Aquarius
P.O. Box 128
Indian Rocks Beach, FL 34635
1-813/595-7890

BLS Tutor Systems
5153 W. Woodmill Drive, Suite 18
Wilmington, DE 19808
1-800/545-7766 Albert Siegfried

Brewster Software Systems
Route 1
Markville, MN 55048
1-612/242-3236 Bob Brewster

Career Aids, Inc.
20417 Nordhoff Street
Chatsworth, CA 91311
1-818/341-8200 Stacy Ward

Comex Systems, Inc.
The Mille Cottage
Mendham, NJ 07945
1-201/234-1616 Doug Prybylowski

Computer Curriculum Corporation
P.O. Box 3711
Sunnyvale, CA 94088-3711
1-408/745-6270

The Conover Company
P.O. Box 155
Omro, WI 54963
1-414/231-4667 Terry Schmitz

Discover Intensive Phonics
637 Turnpike Road
Golden Valley, MN 55416
1-612/544-7448 Barry Rosinsky

EDL
P.O. Box 210766
Columbia, SC 29221
1-803/773-0944 Ken East

Educational Activities, Inc.
1937 Grand Avenue
Baldwin, NY 11510
1-800/772-0944

Filette Keez
3204 Channing Avenue
Bedford, TX 76021
1-817/283-5428 Roxanne Harbert

Franklin Learning Resources
122 Burrs Road
Mt. Holly, NJ 08060 Constance Bettino

Hartley Courseware, Inc.
818 Wilson Road
Humble, TX 77338
1-713/540-1793

IBM Corporation
1133 Westchester Ave.
White Plains, NY 10604
1-914/642-6039

Ideal Learning, Inc.
327 S. Marshall Road
Shakopee, MN 55379
1-612/445-2690

Josten's Learning Corporation
6170 Cornerstone Court East, Suite 310
San Diego, CA 92121
1-800/521-8538 Linda Kleinfield

Krieger Publishing Company
P.O. Box 9542
Melbourne, FL 32902-9542
1-407/724-9542

Literacy Volunteers of America, Inc.
5795 Widewaters Parkway
Syracuse, NY 13214
1-315/445-8000

Major Ed Resources
10153 York Road, #107
Hunt Valley, MD 21030
1-301/628-1527 Christine Russell

National Textbook Company
4255 West Touhy Avenue
Lincoln Wood, IL 60646-1975

New Readers Press
1320 Jamesville Avenue
Syracuse, NY 13210
1-315/422-9121 Libby Jerry

Paradigm Publishing International
6436 City West Parkway
Eden Prairie, MN 55344
1-612/941-4111 John Butcher

Prentice Hall Regents/ Cambridge Adult Ed
Englewood Cliffs, NJ 07632
1-201/592-3477

Proficiency/MacEnglish
185 S. State Street, #950
Salt Lake City, UT 84111
1-801/322-4111 Steve Fischbein

The Roach Organization
4660 W. 77th Street
Edina, MN 55435
1-612/832-1542 Bruce Vassar

Scott Foresman and Company
1900 East Lake Avenue
Glenview, IL 60025
1-708-729-3000

South-Western Publishing Company
5101 Madison Road
Cincinnatti, OH 45277
1-513/527-6976 Connie Burns

Steck-Vaughn Company
P.O. Box 26015
Austin, TX 78755
1-512/343-8227 Don Huff

University Communications, Inc.
41 East University Avenue
Champaign, IL 61820
1-217/351-1045 Carmel Gross

Use'r Computers
1374 Quarry Lane
Minnetonka, MN 55435
1-612/938-1100 Ric Palmer

The Wisconsin Foundation for VTAE, Inc.
2564 Branch Street
Middleton, WI 53562
1-608/831-6313 Barry Mirkin

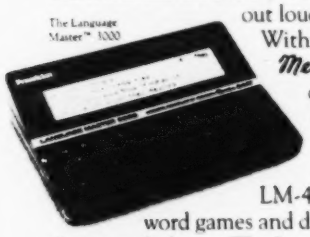
Perhaps The Most Effective Teaching Tools Since Chalk.

The LM-4000 Speaking Dictionary

Throughout years of changes in education, one problem has remained constant—creating enthusiasm for learning language skills. Now Franklin electronic reference products are doing just that. They're helping students improve their spelling, reading and writing in a way that's fast and fun.

The World's First Speaking Dictionary Adds A New Dimension To Learning Vocabulary.

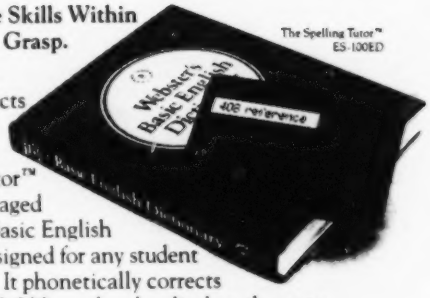
The Language Master™-4000 does what no conventional dictionary can: It pronounces words out loud, clearly and correctly. With 83,000 words from *Merriam-Webster*®'s dictionary, it phonetically corrects spelling and gives complete definitions and synonyms. The LM-4000 also plays challenging word games and drills to help students expand their vocabularies. The Language Master™-3000 is the most advanced electronic dictionary available for those who don't need the speaking feature. With all the reference capabilities of the LM-4000, it makes using a dictionary fast and easy.



Some Of Our Best References Are From Educators.

Response has been overwhelming. Says one teacher, "The children took charge of their learning and the teacher was free to instruct in the process of writing, rather than picking out errors."

Better Language Skills Within Every Student's Grasp.



Franklin has developed products for educational use at all levels. The Spelling Tutor™ ES-100ED, packaged with Webster's Basic English Dictionary, is designed for any student of basic English. It phonetically corrects the spelling of 50,000 words, plus displays the page number in the accompanying dictionary where the definition can be found. It also plays tutorial word games. The Speaking Dictionary Companion,™ also packaged with Webster's Basic English Dictionary, contains all the features of the ES-100ED, plus includes Franklin's voice technology to pronounce the words aloud.

Call For Our Free Catalog.

Franklin offers a full range of electronic dictionaries, thesauruses and phonetic spelling correctors. For more information, and to get our free catalog, call Franklin Learning Resources toll-free. **1-800-525-9673**

Franklin®
Learning Resources

© 1990 Franklin Learning Resources, 122 Burrs Road, Mt. Holly, N.J. 08060 *Merriam-Webster*® is a trademark of Merriam-Webster, Inc.

BEST COPY AVAILABLE

Sharing ideas in Canada

by Brent Poulton, Naomi Garber and Cindy MacMillan

The Computers in Literacy Committee of the Metro Toronto Movement for Literacy acts as a forum for groups interested in computer use for adult literacy. Organized in 1987, the committee draws its membership from all levels of the literacy movement in Toronto and involves practitioners from across Ontario.

The committee launched several important projects in 1990, supported by the Ontario Ministry of Skills Development, and by the Secretary of State of Canada. These projects were: a day-long hands-on workshop to introduce practitioners to literacy software, an Ontario-wide survey of software programs used by literacy organizations, and a policy paper on the use of computers in literacy instruction. The latter two undertakings grew out of the strong desire and need shown by workshop participants for guidance in sorting through the vast array of available software programs.

Policy Paper on Computers in Literacy Instruction

The policy paper may seem simply to record commonsense practices. Planks in the platform, each designed to clarify and reinforce good literacy programming and acquisition decisions, can be encapsulated as follows:

"The bottom line, finally, is that for some practicioners and learners, the best use of computers may be none at all."

■ Computers should be used to creatively challenge learners and literacy workers/tutors while enhancing traditional tutoring techniques. This means choosing software which is tutorial-based, software which encourages creative writing and problem-solving, and software that requires more than merely pressing buttons or filling in blanks, wherever possible.

■ Secondly, the use of computers should never compromise the learner-centered approach. Literacy workers should make sure that software is appropriate to the age, culture and socio-economic background of the learner. In the case of written materials, for example, some Canadian learners have been puzzled by the prevalence of Latino characters in American-made books and publications. (In most parts of Canada, the Latino population does not have the same presence as in the United States.) Software should address the needs that motivate students to involve themselves in a literacy program, and the software should be user-friendly, reducing technological barriers to learning through efficient programming and at the source.

Authoring capabilities', for example, make software especially helpful, enabling instructors and learners to base computer activities upon their own written material.

■ Computers should help learners to enhance and develop both new and existing skills. Used appropriately, computers in literacy instruction can simplify labour-intensive tasks, can drill and strengthen specific skill areas, and can help learners progress toward using software at work and in personal applications. Computers can also improve communication for people with certain physical disabilities, and for those who sometimes get mired in the physical process of writing on paper, limiting their creativity.

■ It almost goes without saying, but the final plank is that for some practitioners and learners, the best use of computers may be none at all. The theme common to all the policies outlined above is that computers are ultimately only a tool to assist and support existing literacy practices—they should never obstruct or interfere with good literacy work.

The information in the policy paper is available in greater detail from the Metro Toronto Movement for Literacy, at 1-416/9610-4013. The upcoming project of the Computers in Literacy Committee is a follow-up evaluation workshop to be held in February of 1991.

The authors can be contacted at: The Computers In Literacy Committee; Metro Toronto Movement for Literacy (MTML); 365 Boor Street East; Toronto, Ontario, M4W 3L4; 1-416/961-4013.

Call for Articles

The AL&T Newsletter will accept articles and newsbriefs on the uses of technology in adult education. Please submit articles by mail on 3.5" diskette written in Microsoft Word or MacWrite, or via AppleLink to LIT.ALTP or LIT.LAIDLEY. Typed or printed articles will also be considered for publication. Please include your phone number and a brief biography. To submit articles, or to inquire about deadlines and our writer's guidelines, please write, phone or link:

Editor
AL&T Newsletter
2682 Bishop Drive, Suite 107
San Ramon, CA 94583
415/830-4200

Apple designates Intellimation as its software source

Apple Computer Company and educational software publisher Intellimation, Inc., have begun a significant expansion of their publishing and distribution service for Macintosh-based software developed by educators.

Initially, the service was run as Kinko's Academic Courseware Exchange. The switch to Intellimation, says Bernard Gifford, Apple's vice-president of education, "will establish a new publishing model for educator-developed software, moving beyond distribution, the primary role of the former service.

"Intellimation will combine the disciplines of academic publishing—with its close attention to content and value—with a thorough understanding of the possibilities of technology."

"Intellimation will combine the disciplines of academic publishing—with its close attention to content and value—with a thorough understanding of the possibilities of technology."

Available software will include standalone programs, interactive multimedia courses using hypertext and videodisk technology, and curriculum integration materials.

Although Apple has diverted resources away from its adult literacy effort, and initial reports from Intellimation highlight the company's interest in higher ed and K-12 software, Project Director Becky Snyder promises that the company will also pursue software developed specifically for adult education and remediation. "It's something we're looking into, and planning to support," she says. "We will definitely be proactively seeking such programs."

Teachers and other literacy practitioners who have written software should not wait until that proactive search begins. According to Snyder, Intellimation carries at least two adult-specific titles in its present catalog, and is eager for additional material from new educator-developers.

The company will guide new developers in refinements of technical integrity, interfaces, content and documentation, and selection or expansion of the appropriate hardware and format (our discussion did not include the possibility of support in the form of said hardware or of additional software.)

After development, says Snyder, "we'll follow through with strong marketing support. We'll facilitate communication among educators doing similar work, provide guidance, and of course we'll participate in forums, distribute information widely, and generally do all we can to make the materials we publish readily available." Intellimation will handle sales and distribution, paying royalties to the educator-developer.

The first Intellimation Library for the Macintosh catalog will be available in fall, 1990.

For further information about the Intellimation Library for the Macintosh and the Academic Courseware Exchange program, see the Macintosh supplement to the Sept. 1990 issue of T.H.E. Journal, or phone Intellimation at1-800/3-INTELL.

AL&T Steering Committee

Eunice N. Askov, Ph.D.
Professor of Education/Dir...
Institute for the Study of A...
The Pennsylvania State U...

Robert Clausen, Ed.D.
Literacy Technology Consu...
Monmouth, Oregon

John Fleischman (Chair)
Administrator, Media Ser...
Correctional Education Dis...
Hacienda La Puente Unified S... District
La Puente, California

Jane Nissen Laidley, Ph.D.
Executive Director
PCC, Inc.
San Ramon, California

Martha A. Lane
Adult Literacy Consultant
Santa Barbara, California

Anthony Sarmiento
Assistant Director
Education Department, AFL-CIO
Washington, D. C.

Antonia Stone
Executive Director
Playing to Win, Inc.
New York, New York

Terilyn C. Turner, Ph.D.
Asst. Director,
Adult Literacy & Special Needs
St. Paul Public Schools
St. Paul, Minnesota

Publisher
PCC Inc.

Editor
Ed Gueble

Art Director
Kristin Prentice
Sphinx Graphics, 1-415/848-4305

Associate Editor
Ellen Margolis

Printing
E&C Offset, Berkeley, California

Fullfilment
San Francisco Mail Service

©1990 PCC, Inc.
2682 Bishop Drive, Suite 107
San Ramon, CA 94583
1-415/830-4200

BEST COPY AVAILABLE

CCC

con't from page 1

CCC will release new courseware designed for adult low-level readers, representing the company's first developments specific to adult literacy after 23 years of educational software and systems design—a signal of the new and welcome importance of the adult basic skills market to the educational technology industry.

"...if I was a trifle bored, I expected to be bored—this was school after all, wasn't it?"

The CCC adult education curriculum, 26 courses in all, includes 1500 hours of ABE and ESL instruction and 550 hours of secondary and GED-level instruction. The bulk of these courses—covering math and science, reading, language skills, life skills and computer education—have been developed originally for the K-12 curriculum. CCC's upcoming releases—"Essentials for Living and Working" and "The Reading Network" (the first three levels of which were released last fall)—have been developed specifically for adults reading at levels one through seven. Nothing in this that breaks new ground.

But the CCC people really feel that their system delivers individualized instruction, even learner-centered instruction. "The system has the ability to identify the needs of a particular student," says Language Arts Product Manager Maureen Hay. "There's no perfect lesson or path through the curriculum, so we as a developer must recognize that we don't know what's best for everyone."

Adds John Dicker, director of CCC's Business and Industry Division, "The molding to each individual student is quite extraordinary, it's almost infinite."

At the core of the CCC curriculum lies a mathematically sophisticated algorithm, guiding the students' progress through the courseware. The algorithm directs the computer to change the mode of the exercise, the skill being studied and the difficulty of the material, keeping the student learning at an optimal rate over the breadth of the curriculum. The system sees to it that learners spend productive time developing a balanced and useful range of skills without close supervision (read 'tutors').

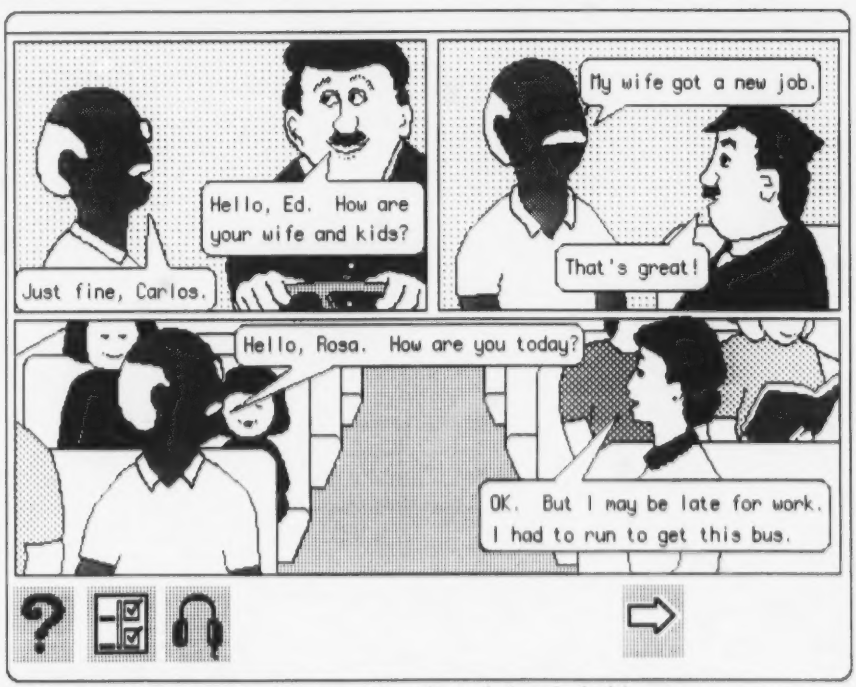
The learner, however, has no choice or control; the teacher (should there be one) can prescribe certain types of lessons and set parameters, but the course content is inflexible. If the elements of active engagement and personalized learning play a central role in effective education, the CCC system has yet to shed the limitations common to the 'big' systems. The system may be learner-centered, but it is not learner-driven.

On the other side of the adult literacy field are the experts and practitioners who promote teacher-intensive programs (see *"Computers and Learner Independence," Summer, 1989)* and revamped roles for teachers, really in all fields of education, in which the learner works as the main digger at the well of information, with the teacher, like a sort of water witch, facilitating that digging.

"Learner-centered instruction," says my boss, Jane Laidley, when I lure her out on a limb, "gives the student a significant measure of participation in determining what the instruction will be, and a great deal of independence in carrying it out. "

"The student's own personal instructional needs and style of learning are taken into account, implying quite a collaborative effort between instructors and students." Course content may develop from that day's newspaper, job-related materials, or a request to know more about Emiliano Zapata

To a certain extent my ongoing 'peasant's investigation' of literacy education is guided by that learning-style as an ideal. Certainly, most of my experience has been of programs a far remove from the scope and integration of the CCC system—volunteer tutors, stand-alone microcomputers, shareware and public domain software all figure into my


Hello, Ed. How are your wife and kids?
Just fine, Carlos.
My wife got a new job.
That's great!
Hello, Rosa. How are you today?
OK. But I may be late for work. I had to run to get this bus.

CCC's "The Reading Network" combines text with graphics in the lower levels of the courseware.

"...suggestions for giving users control over the content of the courseware... seemed necessarily at odds with the spine of the CCC structure."

understanding of adult literacy and technology. When CCC invited adult ed professionals, including members of the AL&T Steering Committee, to visit their offices in Sunnyvale, California, for a seminar featuring pre-release versions of their materials for adult low-level readers, I tagged along thinking I might learn something and get a free lunch.

Confronted with the courseware via demonstration and hands-on workshops, I thought it was all OK; if I was a trifle bored, I expected to be bored—this was school, after all, wasn't it?

But the invited experts—Eunice Askov, Robert Clausen, Jane Nissen Laidley and Terilyn C. Turner from the AL&T, and Steve Reder, a workplace literacy consultant—were far more discerning. They applauded the lively programs, mostly newer releases, especially the adult ed software still in development, and appreciated the sophistication and power of the branching processes which guide the learner through the courses. And they bluntly demanded more sophisticated programming and greater power for the adults, and children, who would be learning on the CCC curriculum.

They specifically pushed for more lively and graphic representation of the course material. They nixed the use of sound as reinforcement, suggesting instead that sound and voice could be better employed as avenues for delivery of the lesson information itself. Terilyn Turner and Jane Laidley pointed out the need for the power to generate printouts of lesson material: printout capability, they said, bypasses workbooks, halving the staff-time involved while still locating appropriate materials. In Turner's words, "Printout exercises connect lab learning-time directly with at-home learning."

These suggestions, and the blunt panning of some of older software and new developments alike were accepted graciously by the CCC people. Our hosts were grateful for the experts' candor, apparently impressed by their insight, and showed a commitment to improving the effectiveness of their designs for adult literacy.

The suggested improvements generally required the developers' to reshape practices that were already in place, or make additional hardware or formats available. According to John Dicker, many suggestions have already been implemented. But suggestions as to means for giving users control over the content of the courseware—inclusion of an authoring software, for instance—seemed necessarily at odds with the spine of the CCC structure. The experts were clear as to the perceived needs and desires of learners, tutors, and employers, and the CCC representatives remained in the room, to be sure, but without, it seemed to me, really grasping the points being made by their guests.

"If I'm a manufacturer," said Jane Laidley, "I want the forms that are carried as graphics in your reading course to include my inventory records or parts list."

"Instant material development is what we need in this area," said Terilyn Turner. "Philosophically, there should be no separate thing called basic skills; with an authoring capability the skills are generic but the customization is the content."

The representatives at CCC countered with questions about the consequences—"Does that make everybody an instructional designer?"—and dismissals of the idea based on the "wide variety of jobs" that the software needs to serve. As I've mentioned above, I believe that these people and their organization are serious about serving the needs of adult education. But we had reached a kind of no man's land of learner centricity, or at least the limits of effective conversation.

The first sticking point is that new content inserted on-site, without CCC supervision, would not be integrated into the system's exhaustive program for assessing performance and managing instruction. Questions arise: Can you combine instruction management, and effective evaluation, with users' control over the curriculum? But CCC and other developers will eventually work toward Turner's "instant material development"; the move makes perfect sense in the workplace market.

The second sticking point concerns learner-*driven* instruction, and will not be resolved with the cooperation of capital: When content becomes flexible, who takes control? To what degree does the learner choose what's learned? What sacrifices does that choice demand of the developer, the educator and the employer? And how can we best balance

"...there are people who have spent their whole lives performing rational functions, like teaching 2+2. Let the computer teach 2+2, and then that person can be free to teach, if he or she has anything to teach."

the conflicts, trade-offs and new possibilities that arise?

What happens when a truly integrated system dis-integrates?

Finding the Center of the Learner

The appropriate answer to those questions will be different for every developer, employer, teacher and learner. We need to consider the means for allowing all of those different

con't on page 12

CCC

con't from page 11

answers to be uncovered and implemented. In this regard, it's instructive to examine the powerful and innovative role played by CCC's learning-management algorithm, and the thoroughgoing nature of the company's reliance on it. The algorithm was developed by mathematician Mario Zanotti, a colleague of CCC founder Patrick Suppes at Stanford University, who joined the company early on and now works as director of evaluation.

Zanotti is the smartest person I met that day. He's smarter than me. Odds are he's smarter than you. His analysis of the function of CAI is brilliant, abstract, practical. "CAI should be used," he says,

"At one point our lab coordinator went in and all four computers were taken up, with people standing around hooked up by headphone to hear what the other people were studying."

"when the conventional tool (teaching/tutoring) cannot be applied or when the conventional tool has revealed that it is ineffective. The goal of CAI, this is Suppes' original philosophy, is to emancipate the learning process from the individual teacher."

The basic learning structure which Zanotti devised for CCC considers the curriculum as composed of a static component—the content of the course—and a dynamic component, the feedback and branching process which guides the learner through the courseware. Course content is constructed as a four-tiered hierarchy, in which the *course*, mathematics, for instance, is divided into *strands*—algebra, fractions, arithmetic—each of which is comprised of various *skills*. In the case of arithmetic, the skills involved would be addition, subtraction, multiplication and division, with each skill presented in exercises to the learner as a variety of *tasks* or exercises.

The tasks are gradated according to difficulty and prerequisition, and may be employed by the branching program in review of prerequisites for other tasks, as a tutorial in a specific task, in sequential presentation of the tasks involved in a particular skill, or in review. The computer analyzes the learner's most recent 40 responses at all times, adjusting the difficulty to lead the student at roughly a 70 percent rate of correct responses: when she demonstrates consistent success in a task, she will be advanced in difficulty or shifted to another section of the courseware; if she fails consistently, the system will "intervene," as Zanotti puts it, to prescribe the appropriate review or remedial tutorial.

"The optimal learning strategy is a distributive strategy—as opposed to simple block learning—minimizing the loss of previously acquired skills," he says. "Such distribution is pertinent to higher-order thinking and the ability to recognize something in different contexts—you learn to see its invariances and symmetries—and so distributive learning produces a more reliable measurement of mastery." Mastery of the strand, of all the strands in the course, is the goal of the CCC educational model; the system functions as a perfectly attentive and informed tutor.

The same algorithm, used in conjunction with the system's record-keeping capability, also works as a kind of curriculum designer for CCC. By charting the rates of learning of the entire body of CCC users, the algorithm reveals the success of the branching scheme of intervention and review and the effectiveness of each lesson in the strands of the curriculum. If the learning curve for these users reveals a kink at any given point, the company's human designers are shown which particular elements in the course to revise.

"...workers received lottery tickets for attending the learning lab's introductory demonstrations, and every five hours spent at a terminal earns a $15 gift."

"This is an incredibly powerful tool also for us," Zanotti says. "And we are on the verge of an explosion of implementation." When I suggest that the system is like a massive artificial intelligence, he nearly explodes as well: "It is not *like* artificial intelligence, it *is* artificial intelligence. This has never been attempted in the history of the world."

Time out. I admit, I've quoted Zanotti at length because he fascinates me—his formulation of learning and teaching processes is crystal clear, if you can distill it. But remember, I heard all this because CCC invited outside experts, because they wanted an outside perspective; if you stretch things slightly, they had even invited me and my perspective along for the ride.

But Zanotti's clarity of vision and purpose, the power of his algorithm, do boggle me. He forces me to question the idea that something crucial to learning, even for adults who have been failed by the mainstream education system, is supplied by close contact with a human teacher: emotional support, 'real' encouragement, a leap of inspiration or association that unblocks the learner. I can't think of what it is, but I want to believe it's needed.

Zanotti readily admits that he is not an educator, and that he's not especially interested in education. "I am interested in CAI," he says. "What one is afraid of is that the concept of CAI will be destroyed, that it will reveal itself as useless because it has been misused.

"There are things the computer cannot do, it cannot account for the fact that I like the color blue. In that sense, it

cannot do the most fundamental thing, it cannot do anything that is not rational.

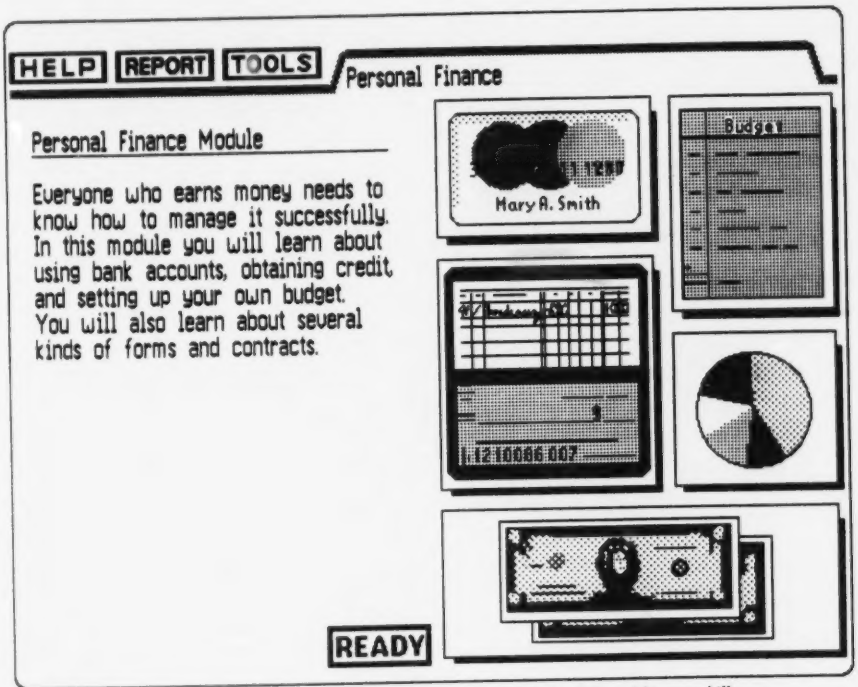
"But there are people who have spent their whole lives performing rational functions, like teaching 2 + 2. Let the computer teach 2 + 2, and then that person can be free to teach, if he or she has anything to teach. The computer can free us to do all the things that mak life worthwhile, that make us superior t the computer—to become aware of yourself, to become aware of your world."

Finding the Center of the Learning

There is an obvious allure for CCC in the connection to its installed base of systems and the great number of learners—several hundreds of thousands every week—who contribute their learning processes to the overall learning curve that represents the performance of the company's courseware. Responding to that allure, software designers might be led to improve graphics and sound, to update lesson content and arrive at a relatively appealing and engaging series of exercises, but they won't be led to expand the use of authoring capabilities or hypertext programming, scanners, or word processors; they won't be led to give teachers and learners the control that the teachers say is so important.

This is by no means a criticism of CCC in particular. The difficulties facing the continued growth of learner-centered/learner-driven instruction can be found in the ugly U.S. economy, the needs of adult education programs, the realities of selling adult ed technology, even in the lifestyle problems that face adults trying to become students.

The U.S. business and industrial slippage has focused terrific attention on workplace education. There's a sense that effort will produce a result in this arena, and the implicit scapegoating of the lower classes, immigrants, teachers and the education system draws attention away from a history of managerial


HELP
REPORT
TOOLS
Personal Finance
Personal Finance Module
Everyone who earns money needs to know how to manage it successfully. In this module you will learn about using bank accounts, obtaining credit, and setting up your own budget. You will also learn about several kinds of forms and contracts.
Mary A. Smith
Budget
READY

CCC's "Experiences in Living & Working" presents forms requiring both math and literacy skills.

"When I suggest the system is like a massive artificial intelligence, he nearly explodes as well: 'It is not like artificial intelligence, it is artificial intelligence.' "

shortsightedness. In any case, government and business spending on workplace remediation is increasing faster than any other sector of adult ed, with developers, consultants, schools and other literacy providers shifting, understandably, to meet the current and anticipated demand. (This shift was strikingly apparent at the AL&T Conference.)

In business, of course—and in an increasing number of other areas in our culture—productivity is the benchmark of value. Developers in the workplace remediation market compete under the need, real or perceived, to show grade-level increases over time and other measurements of their products' effectiveness. And in defense of business and the developers, part of a workplace program's utility rests on its purchaser's ability to predict these rates of improvement.

With respect to non-workplace ABE programs, increased competition for funding, and the culture-wide obsession with productivity have created a similar, though perhaps more desperate, need for accountability and measurable progress. Business-education partnerships, schools managed like corporations, job-skills courses included at all levels of ABE—the signs of our new fixation, for better or worse, are everywhere.

At the Center of the Factory

There is, however, hope. Followed by more questions, as always. At the Weber Metals plant in Paramount, California, the CCC system seems to center perfectly on the major needs of the company's workers. Two terminals and speech systems, belonging to the Paramount Unified School District, were installed in an office and linked to the district's CCC system in March, 1990. The building is open all night, with workers on all three shifts stopping

con't on page 14

CCC

con't from page 13

by before or after work, at lunch or on coffee breaks. Of the 200 Weber Metals employees, most of whom are Latino, 63 are considered currently active in the new learning lab. The district has had to add two more terminals.

"At one point our lab coordinator went in and all four computers were taken up, with people standing around hooked up by headphone to hear what the other people were studying," says Sinclair Hugh, a personnel consultant to Weber Metals. The installation succeeds, he feels, because "the lab is their room," near where they work but 150 yards from the main office.

A second key element seems to be the learners' freedom from reliance on tutors, regular hours, or even large blocks of learning time. They are empowered, in a sense, by the technology's power over their learning and, according to Hugh, they learn. He cites a worker shifting from the factory floor to a clerical position in the shipping department, and workers taking four courses concurrently or moving quickly to adult school. Seven workers are studying for their G.E.D., he says, and one who moved on to adult school passed the G.E.D. test with the highest score in the district's history. According to supervisors, he says, the factory's history of communications and skills problems seem to be improving.

At this remove, the workers' progress and the unique contribution of the CCC system are not measurable—that problem again. But Hugh fairly bubbles with enthusiasm. "At this point we're so far ahead of the game, even in terms of company loyalty... but the thing I'm impressed with is that they do all this work on their own time, on their breaks," he says. "To me as a consultant, this is the most satisfying thing I've ever been involved with."

At the Center of Contradiction

The success of the CCC installation at Weber Metals doesn't close the issue of learner-centered instruction; on the contrary, it reveals that we need to consider our terms, our values and every specific situation with care and wisdom. Problems and questions still exist: the Weber Metals workers, for instance, received lottery tickets for attending the learning lab's introductory demonstrations, and every five hours spent at a terminal earns a $15 gift. (If productivity increases at the plant will the value of the gifts increase or will wages improve?) What will happen to learning disabled workers? The CCC system allows some adjustment of its parameters to meet the needs of the learning disabled, but with the lab coordinator, who is a school district employee, attending only a few hours every week, who makes those adjustments? Or the adjustments needed by other learners? Given the big systems' potential for use without instructors (which no vendor would advise, but which is clearly the case at Weber Metals) what options are available to workers who want to learn something not on the system?

"At this point we're so far ahead of the game, even in terms of company loyalty... but the thing I'm impressed with is that they do all this work on their own time, on their breaks."

As Mario Zanotti says, the danger in CAI is that it will be misused. I'm less interested in the future of the discipline, however, and more concerned about the learners who suffer under its misuse: there will be learners who need or want help, and they will not get it. And as the Metro Toronto Movement for Literacy states clearly (see page 9), for some learners, and practitioners, the best use of computers may be none at all.

It is vital, moreover, that we not be distracted from other aspects of learner-centered instruction and basic skills education by the power of integrated systems. The quality and quantity of training which adult educators receive must become a high priority, in part to ensure that adult educators, not only human resource specialists, software designers and marketing departments, guide workplace education. Terilyn Turner, who shuttled from the International Reading Association conference to the American Society of Training and Development conference, reports feeling a little "schizzy, because the IRA was long on content, but the technology was thin. At ASTD, there was lots of technology, but very skimpy content."

On the other hand, the vision of learner-centered instruction which has been prevalent to date may be unworkable. Using a high-end estimate of 68 million adult Americans suffering functional illiteracy, 'traditional' learner-centered eradication of this problem implies that 'we', us literate folk, must quickly become a nation of tutors. A better answer of course is that everyone involved must strive for wisdom and maturity—realizing that learners are caught between market-dominated developers, low levels of funding and staffing for ABE, and industry's need for a quick fix—and act accordingly.

"If 68 million Americans suffer functional illiteracy, 'traditional' learner-centered eradication implies that 'we', us literate folk, must quickly become a nation of tutors."

But we live in times of some contradiction: Knowing what we know, how can we generalize about the millions of illiterate adults? How, with the same knowledge, can we afford not to? As Mario Zanotti, knight-errant of CAI, puts it, "We begin with the fundamental philosophy that learning is a completely personal experience." ■

Closed-Caption

con't from page 1

number of written tests than any of the other treatment groups."

In closed-captioned T.V., the audio portion of a program is converted into written words that appear on the bottom of the T.V. screen, like untranslated subtitles in a foreign movie. Broadcast along with the regular video and audio portions of the television signal, the captions are only visible on T.V. sets equipped with decoders.

In the NCI study, seventh- and eighth-grade students from Asian and Latino language backgrounds worked with video and/or print segments of "3-2-1 Contact," a science series produced by the Children's Television Workshop. Students were randomly assigned to four groups, with one group watching closed-captioned television, one watching 'regular' television, one reading and listening to text , and one group reading alone. The students were then tested on their abilities to recognize and understand 90 target vocabulary words, such as "respiratory system," "carbohydrates" and "predator."

Those students who watched the closed-captioned broadcast, Neuman reports, "were better able to recognize spellings, understand word meaning and pronunciation, and they grasped onto concepts much more quickly than by reading alone." The test supports the theory that learning is improved when students are exposed to the information in three simultaneously occurring forms: they see a visual image, hear the dialogue or narration, and read the text of what they hear. Closed-captioned programming, according to NCI, is an important source of 'comprehensible input,' information which people can use to learn language and literacy without formal instruction, by encouraging them to use cues from their environment and language they already know.

Neuman feels that captioning creates "a shared learning environment" which is particularly important "if you have a mix from various ethnic backgrounds" working in one classroom.

A closed-captioned view of "Who's the Boss?" speeds reading and language learning.

NCI, a non-profit organization founded in 1979, provides closed-captioning services for network, cable and syndicated television programming, home videos, and commercials. The company developed and now markets its Tele-Caption decoder unit (generally costing under $200) through retail outlets nationwide. The company estimates that over 1.1 million viewers have access to the more than 300,000 units which have been purchased.

Producers currently decide to caption about 400 hours of network, cable and syndicated programming each week. In addition, more than 2,000 captioned movies are available on home video. NCI shares this market with several

con't on page 16

"Closed-captioned programming, according to NCI, is an important source of 'comprehensible input,' information which people can use to learn language and literacy without formal instruction...."

BEST COPY AVAILABLE

Closed-captioned

con't from page 15

private-sector captioning services, none of which commissions research or develops decoding products.

Five of the eight prior studies commissioned by NCI have focused on ESL populations or reading remediation, with findings that support the positive effect of closed-captioned viewing on language learning, cultural literacy, motivation, vocabulary and comprehension. Two of these tests have involved adult learners.

"This is the first time we've commissioned a long-range study, incorporating background information," says NCI spokesman Morgan Bramlett. "There are a lot of other things we'd like to test, including measuring reading speed and working with different age groups, including adult learners." NCI, however, has no further studies planned at this time.

"This is the first time we've commissioned a long-range study... there are a lot of other things we'd like to test, including measuring reading speed and working with different age groups, including adult learners."

Information about these studies was supplied by NCI, giving us no opportunity to review methods, results or conclusions.

For further information, contact Morgan Bramlett at: NCI, 5203 Leesburg Pike, Suite 1500, Falls Church, VA 22041, 1-703/998-1530.

Anti-Viral freeware

Copies of the following viral detection and removal programs are available from Michael A. Coffey of MeCorp. Developers are listed in parentheses.

For the Mactintosh

Agar (Bill Krimmel) A small file that acts as "bait" for viruses.

Condom (Alan Goates) A form of anti-virus protection.

CRC (Raymond Lau) Notes changes in files, clues to possible viral activity.

Disinfectant (John Norstad) One of the best protectors.

Eradicat'Em (Dave Platt) WDEF-protection and repair.

Ferrett (Larry Nedry) Finds Scores virus.

GateKeeper (Chris Johnson) Excellent detection and removal.

Interferon (Robert Woodhead) Finds Scores, nVir and others.

KillScores (Mac Pack/Apple Corps of Dallas) Erases Scores virus and fixes applications.

Sniffer (no known author)

The Guard Dog (Prevents programs from being moved around or trashed. Shareware.

Vaccine (CE Software) Continually checks for Scores, nVir and the Peace virus.

Virus Detective (Jeffrey Shulman) Excellent shareware.

Virus RX (Apple Computer) Identifies infected applications and system files.

For the Apple II

DOCTOR.DAILY (Guy T. Rice) For GS operating systems.

Vaccine II (A full-function virus analyzer for the IIGS.

VIRUSMD (Morgan Davis) For ProDOS and GS operating systems.

VIRUSKILLER Detects the Lode Runner infection and repairs disks.

To receive these programs, specify whether you would like: three 800K Macintosh disks, two sides of an Apple II 5.25" disk, or two 360K MS-DOS disks, and include $7.00. Mail to: Michael A. Coffey,1640 Canter, Florissant, MO 63033.

Shareware included above will ask for payment if you use the program. Remember to back up your files often, and to record the size of systems and applications files. No anti-viral program is foolproof!

This information courtesy of the Apple Library Users Group Newsletter (July, 1990, issue). ©1990.

AL&T

con't from page 5

- "Still, we need systems that let people learn."

  Antonia Stone
  AL&T

- "The administration's goal is to make every adult in the country literate by the year 2000. Under current adult literacy acts, funds in fiscal year 1991 will increase 24 percent, from $192 million to $250 million."

  Julia Schifferd
  US Dept. of Ed.

- "I think we have to count on the fact that developments in K-12 will trickle down, or trickle up, to adult education where they will have a positive effect."

  Phillip Atwood
  IBM

- "What I see and hear in the K-12 arena is that vendors need to have input from K-12 educators. We learned that it doesn't do a whole lot of good to dump resources into a classroom."

  Christy Bulkeley
  Gannett Foundation

- "The restructuring that Ted Fiske talked about is important *[see above]*, but a bigger problem is resources. We are 19th among top industrial nations in spending per student on K-12 education, with still less spent for adults. We need to be interested in more than the one to two percent of adults needing adult ed who can get into publicly funded ABE programs."

  Anthony Sarmiento

- "We need to be moving toward total learning communities."

  Christy Bulkeley

REASONING SKILLS ON THE JOB™

Employers must have workers who can use their heads.

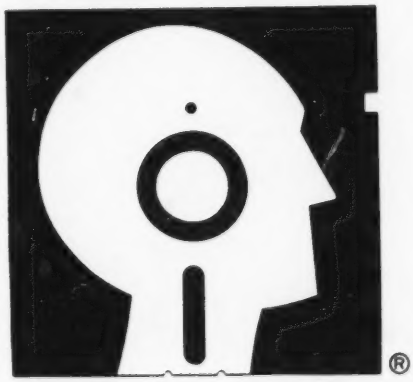
Their corporation's future depends on it.

Perhaps no other workplace basic skill is as important as the ability to use one's head to solve work-related problems. From entry-level positions to middle and upper management, employees must be able to critically think and solve work-related problems.

No longer are the three Rs enough. Employees must be able to apply what they have learned and be able to critically think and solve work-related problems. We at The Conover Company have been working for almost ten years on developing our work-related basic skills programs.

REASONING SKILLS ON THE JOB™ is the newest program in a series known as our WORKPLACE LITERACY SYSTEM™. Other programs within this series are LEARNING ACTIVITY PACKETS (LAPs), MATH ON THE JOB™, ENGLISH ON THE JOB™, and SOCIAL SKILLS ON THE JOB™.

For free information on our reasoning skills program, as well as other programs in our WORKPLACE LITERACY SYSTEM, call or fill out the coupon below.



For a free catalog, fill out and return our coupon today.

20 ROJ

Name _____

Position _____

School _____

Address _____

City _____ State _____ Zip _____

Phone _____

The Conover Company Ltd

_____

P.O. Box 155 Omro, Wisconsin 54963 800-933-1933

Technology Consultants
Adult Literacy and Technology Project

The Technology Consultants in the Adult Literacy & Technology Project have been active for the last three years, providing assistance to hundreds of literacy practitioners on a wide range of questions such as how to begin using technology, how to select software and hardware and how to find software for special-need learners. Requests for information have come from practitioners at many kinds of agencies: ABE, Laubach, LVA, universities, government, business, labor, community colleges and corrections.

The TCs, chosen for their literacy-related technological expertise, are 'on-call' for free or low-cost consultation, and for presentations at conferences. Please keep this list for reference.

■

June Eiselstein
The New Britain Public Library
20 High Street
New Britain, CT 06051
(203) 224-3155 or (203) 223-7667

Region Served: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

■

Christina Jagger
Laubach Literacy International
1320 Jamesville Avenue
Syracuse, NY 13210
(315) 422-9121

Region Served: New York, New Jersey, Puerto Rico, Virgin Islands

■

Donald Egner
Private Consultant
5806 Pine Hill Drive
White Marsh, MD 21162
(301) 335-2060

Region Served: Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia

■

Judith Lipscomb
Mississippi Office for Literacy
500 High Street
2000 Walter Sillers Building
Jackson, MS 39201
(601) 359-2673

Region Served: Alabama, Florida, Georgia, Kentucky, Mississippi, Louisiana, North Carolina, South Carolina, Tennessee

■

Deborah Young
UAW Ford/EMU Academy
7164 Camelot Drive
Canton, MI 48187
(313) 487-6138 or (313) 459-9217

Region Served: Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

■

Ruth Hollenbeck
Adult Education Department
Moberly Area Junior Colleges
Moberly, MO 65207
(816) 263-4110

Region Served: Arkansas, Oklahoma, Iowa, Kansas, Missouri, Nebraska

■

Mike Hill
107 F Paisley Court
Bozeman, MT 59715
(406) 585-7359

Region Served: Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming

■

Jane Nissen Laidley
PCC, Inc.
2682 Bishop Dr., Suite 107
San Ramon, CA 94583
(415) 830-4200

Region Served: Arizona, Northern California, Nevada, American Samoa, Guam, Trust Territory of the Pacific, Hawaii

■

Lucy MacDonald
Chemeketa Community College
P.O. Box 14007
Salem, OR 97309
(503) 399-5093

Region Served: Alaska, Idaho, Oregon, Washington

■

Sheila Shaw
4343 Ocean Boulevard
San Diego, CA 92113
(619) 230-2800

Region Served: Southern California, New Mexico, Texas

Adult Literacy & Technology Newsletter

Subscription Offer

You are invited to subscribe to a unique periodical—the newsletter of the Adult Literacy & Technology Project. The project, comprised of literacy practitioners and theorists, and representatives of business, labor and government, is the first program in the nation to dedicate itself to research and advocacy of the uses of technology to aid in teaching literacy and other basic skills to adults. Please join our effort to create a more literate, productive and humane world.

Our four-issue newsletter subscription is based on the calendar year. To receive all four 1990 issues, complete and mail this form with the appropriate subscription fee (see below). Back issues will arrive with the next current issue.

Subscription benefits include:

- the AL&T Newsletter
- participant discount at the AL&T Conference
- discounts on selected AL&T publications

Subscribers at the Patron rate will also receive mention in the Newsletter, and inclusion on the Adult Literacy & Technology Project's Patron List.

Please check appropriate boxes: ❑ New Subscription ❑ Renew Subscription ❑ Reader survey only

Subscription Category	**Annual fee:**
❑ Individual	$15.00
❑ Non-Profit Agency	$15.00
❑ Business	$50.00
❑ Patron	$500.00

I would like to order from AL&T:

❑ The Guide to Recommended Literacy Software ❑ (member) $13.50 ❑ (non-member) $ 15.00

Total enclosed: **$_____.00**

Please make payment in U.S. currency or equivalent.
California residents add 7% sales tax.

_____
Name

_____
Title

_____
Agency

_____
Phone

_____
Address

_____
City/State/Zip

Completed form and checks payable to PCC, Inc. (fiscal agent for the AL&T Project) should be mailed to:

Adult Literacy & Technology Project
PCC, Inc.
2682 Bishop Drive, Suite 107
San Ramon, CA 94583
415/830-4200
Attn: Mahre Mackay

People's Computer Company, fiscal agent
Adult Literacy & Technology Project
2682 Bishop Drive, Suite 107
San Ramon, CA 94583

Non-Profit
Organization
PAID
San Ramon, CA
Permit #218

The Adult Literacy & Technology Newsletter

Fall Issue 1990

INSIDE

Learner-Centered Technology

Closed-Captioned T.V.

At the 1990 AL&T Conference

Intellimation and Apple Join Forces

Sharing Ideas in Canada

And more . . .

The Adult Literacy & Technology Project benefits from the gracious and consistent support of the Gannett Foundation.

Adult Literacy & Technology Newsletter

©1990, PCC, Inc.

Vol . 4, No. 4 Winter 1990

Trade-offs and pay-offs: Workplace literacy at a crossroads

by Ed Gueble

There are two sides to every coin. So go ahead, put the knock on a literacy project or a program that goes against every scrap of doctrine, dogma and theory that you know, really take a swing at it. But remember that you're also taking hacks at something that someone has built out of an inhuman amount of time and effort—and care—with too little money and laughable pay, for people who see that particular literacy project as their best hope for a way out of a crippling problem.

But we've got to take some hard swings once in a while, because some literacy instruction is always going to *seem* better than none at all. The nastier it is, however, the more it's going to have swallowed the energy and care of dedicated people—learners, tutors and funders—but gained them nothing. *con't on page 12*

CONTENTS

On the road again	1
The bus stops here	1
Trade-offs and pay-offs	1
Technology and the season of caring	2
OTA begins assessment	4
Software review: Reading Realities	5
Books on literacy, the workplace and culture	6

On the road again in Toronto:

A mobile computer lab

by Brent Poulton

Many innovative approaches to adult literacy try to bring learning opportunities to where the people are, rather than requiring attendance in a formal classroom situation. In Canada, Frontier College was founded by Alfred Fitzpatrick on the principle that "Wherever and whenever people shall meet, there should be the time, place and means of their education." Today, this principle is evident in many programs across the country. One of the more recent applications has been with the Microtron Centre in the city of York (part of Metropolitan Toronto).

The Microtron Centre has been offering computer-based instruction to residents of Toronto for more than three years. Their most interesting innovation is the deployment of a mobile computer lab, a renovated 1976 'Blue Bird' school bus, around the city. I spoke with Microtron Manager Michael Sloan and visited the roving computer lab on one of its classroom stops at a Toronto hospital, where employees were working on computer skills.

The center works in partnership with individuals and businesses to offer low-cost computer literacy training. The bus is usually sent to locations where there are concentrations of learners. Three hours of closely supported computer tutoring only costs between $78 and

con't on page 8

The bus stops here: The L.A. Times Mobile Reading Lab

by Ed Gueble

In December, 1987, the Los Angeles Times opened their reading lab, equipped with 12 computers, along with videotape and videodisc players—room for sixteen learners to work at a time, just a few feet from Skid Row and its micro-cities built every night out of cardboard boxes. Most of the students who attend are sponsored by community learning centers and service organizations for the disadvantaged. No one pays a cent to use the lab.

"We owe our neighborhood something," says Learning Center Director Barbara Neder, speaking for the Times. "We know words, and we know technology, so the lab was a natural."

Apparently the Times thinks of itself as living in a pretty big neighborhood. In February, 1990, the Times rolled out its Mobile Reading Lab, able to deliver six IBM PCs and a library of software to literacy projects and other service organizations anywhere in the Los Angeles area.

"We go to places where people don't have access to regular computer labs," says Donna Christofferson, the Times Mobile Reading Lab's driver and instructor. "At the Telfair Elementary School, where I'm working right now, a group of 12 to 18 Hispanic women are participating in a parent-involvement program. While the kiddies are in

con't on page 10

Guest editorial

By the time this issue reaches you, the official season of good cheer will be over or nearly so. Publisher Jane Laidley nonetheless feels that a broader perspective, connecting us back to our world and ourselves, is in order. We are happy to oblige her.

SOMETHING will have gone out of us as a people if we ever let the remaining wilderness be destroyed; if we permit the last virgin forests to be turned into comic books and plastic cigarette cases; if we drive the few remaining members of the wild species into zoos or to extinction; if we pollute the last clean air and dirty the last clean streams and push our paved roads through the last of the silence, so that never again will Americans be free in their own country from the noise, the exhausts, the stinks of human and automotive waste. And so that never again can we have the chance to see ourselves single, separate, vertical and individual in the world and competent to belong in it. Without any remaining wilderness we are committed wholly, without chance for even momentary reflection and rest, to a headlong dive into our technological termite-life, the Brave New World of a completely man-controlled environment. We need wilderness preserved—as much of it as is still left, and as many kinds—because it was the challenge against which our character as a people was formed. The reminder and the reassurance that it is still there is good for our spiritual health even if we never once in ten years set foot in it. It is good for us when we are young, because of the incomparable sanity it can bring briefly, as vacation and rest, into our insane lives. It is important to us when we are old simply because it is there—important, that is, simply as idea.

Wallace Stegner
From "Coda: Wilderness Letter"

In my opinion

Technology and a season of caring

by Terilyn C. Turner

November, 1990. Technology has made me into a better friend. Having moved and traveled a great deal, I know a lot of people I want to keep in touch with, but I'm generally a lousy correspondent. My annual mailing of Christmas cards has been drastically altered and wonderfully enhanced by the advent of technology. I realize this fact anew each year as I update my address database and print labels for the envelopes. I send out about seventy-five greetings, most with personal letters generated by the word processor. By composing and editing on the computer I can change language quickly and easily, creating a far more personal message than the standard chain letter.

It seems to me that technology is given a bum rap in the interpersonal department. Technology is frequently labeled cold and forbidding, and it may be automatically blamed for its misuse by people. In Nebraska at a literacy conference I recently heard the all-too-familiar story of 7,000 workers displaced by robots, with "Technology" decried as the cause. To be sure, *Workforce 2000* and other documents have made us painfully aware of the impact new technologies are having on the total economy. Over the next 25 years, the United States will need to create 20 to 25 million jobs to replace jobs that will be lost and to keep the unemployment

con't on page 17

Newsbriefs

The **National Council of Churches** has given their **"Outstanding National Literacy Leader" award to Martha A. Lane**, a free-lance literacy consultant and member of the AL&T Steering Committee. Receiving the award, Lane stressed the importance of literacy education that meets the goals of individual learners, and that considers literacy skills in the context of families, communities and countries. Lane designated the award's $3,000 grant to Farmworkers Self-Help, Inc., in Pasco County, Fla., whose Norma Learning Center provides education in farming techniques, horticulture, English, citizenship and American history. Other award recipients were the Rev. Samuel Habib, president of the Protestant Churches of Egypt. and Mary N. Buehler, director of the Sacramento Literacy Program, in Sacramento, Calif. Right on.

The National Center on Adult Learning and Empire State College State University of New York request proposals for presentations to the **Higher Education and Workforce Development: Blueprints for the Decade Conference,** to be held June 5-7, 1991, in Saratoga Springs, New York. Issues include: adult learning—key to workforce restructuring; restructuring higher education—internal challenges; restructuring higher education—external opportunities. Contact the National Center on Adult Learning, SUNY Empire State College, One Union Avenue, Saratoga Springs, NY 12866-4310, or 1-518/587-2100.

Educational Technologies Inc. has released **Basemate,** giving teachers the ability to correlate their Basic Academic Skills for Employment (BASE) program to the standardized test of their choice. Out of the 254 basic skills lessons offered in BASE, Basemate will prescribe and deliver lessons based on needs determined by the tests. Contact ETI at 1007 Whitehead Road Ext., Trenton, NJ 08638-2405; 1-609/882-2668.

Simon & Schuster Workplace Resources and the Educational Testing Service (ETS) have released their Tests of Applied Literacy Skills, a series of task-oriented adult literacy skills tests, measuring skills in prose literacy, document literacy and quantitative literacy, without linking these skills to grade levels. Using printed materials such a service contracts, handbooks and instructional manuals, transportation tables and maps, the tests apply standards used by the U.S. Department of Education. For further information, contact Simon & Shuster Workplace Resources, at 1-212/373-8000.

The Steck-Vaughn Company is offering **GED-2000,** a comprehensive GED preparatory program including self-paced

BEST COPY AVAILABLE

learning, testing and management components. GED-2000 requires Apple II or IBM-compatible computers. Contact Steck-Vaughn, P.O. Box 26015, Austin, TX 78755, or 1-800/531-5015.

Davidson & Associates, Inc., is introducing their Apple Macintosh version of **Alge-Blaster Plus,** covering algebraic skills from the ordering of operations to quadratic equations for learners from 12 years old to adults. Alge-Blaster Plus runs on Macs with system 6.04 or higher and one megabyte of memory. Color is available. Suggested retail prices are: $55.95, single unit; $69.95, 2-disk teacher's edition; $179.95, five-disk lab pack. Alge-Blaster Plus is also available for IBM-compatible computers and the Apple II series. Contact Davidson's Sales Division at 1-800/545-7677.

The **National Youth Professionals' Institute,** a training conference for professionals who work with at-risk youth, will be held March 24-27, 1991, at the Anaheim Marriott, Anaheim, California. Call the NYPI Registration Desk, 1-800/274-2005, for information and registration.

The National Education Association's Conference on Educational Technology, **"Advancing National Education Goals: The Role of Technology,"** will take place in San Francisco, March 8-10. Contact Bob Minor, NEA, 1201 16th St. N.W., Washington, DC 20036-3290; 1-202/833-7700.

Educational Computer Conferences will hold the **1991 Technology & Reading/Learning Difficulties,** April 18-20, 1991, at the New York Penta in New York City. Strands will include: learning disabilities, reading, adult literacy, ESL, writing, evolving technology, administration, and special education and speech. Contact Diane Frost at ECC, 1070 Crows Nest Way, Richmond, CA 94803; 1-800/255-2218 or 1-415/222-1249.

Erratum

Regrettably, the article "State libraries meet on literacy," in our Spring, 1990, issue, included material cited without proper attribution from "Strengthening the library network for literacy," by Shelley Quezada, which appeared in *The Wilson Library Bulletin*, February, 1990. On behalf of the author, our publisher and the *AL&T Newsletter*, I would like to thank the *WLB* editors for their understanding and for bringing the matter to our attention.

—Editor

To the AL&T Project:

The fall, 1990, newsletter—with its letter by Dowling and Hanish—came in the mail along with a report on the California Technology Project. The latter deals with K-12 education; the situation in adult ed is very similar with respect to the most critical needs of users or would-be users of educational technology.

The report states that the primary problems are lack of funds, poor staff development, inadequate equipment/facilities, and teacher anxiety. Staff development problems include lack of in-service opportunities and trainers and lack of released time. Specific staff development needs are: integration of educational technology into the curriculum, training in use of the equipment and software, and problems associated with materials selection and information on resources. The technologies in question are computers and video. Even California, a relatively affluent and technology-minded state, with a very high machine-to-student ratio, is concerned with these two "basic" technologies and their integration into the curriculum, with finding ways to exploit what they already have.

I recently did a workshop in a large adult ed program in California. Although I envied their facilities, which were not really super high-tech, even this apparently well-funded program needed exactly what the less-endowed need. What is unusual about this program is that it offers its teachers a huge number of in-service opportunities on paid time.

Since that scenario is not common, I agree with Dowling and Hanish that AL&T should not focus exclusively or primarily on the newest and most expensive technologies because most of the workers in the field are not likely to have adequate (or any) access to these marvels, and because our students' access is limited to our equipment. I would like to see AL&T conferences focus more on the exploitation of video (as the VCR is becoming almost as common as the TV) and on making better use of low-end computers.

There are many conferences and shows where one can see the "hot, new and often expensive." The need is for more practitioner-led workshops, "show and tell" presentations, and similar events which foster sharing of materials and methodology. Such events are equally useful to those whose institutions have the fancier equipment because they can easily use laser discs and CD-ROM instead of video tape and computer animations, having instant presentation of audio and graphics instead of waiting for loading or even having to swap disks. In any case, all the slick high tech imaginable will not make a bad lesson into a good one.

Sincerely,

Macey B. Taylor
Tucson, Arizona

Macey B. Taylor teaches and supervises methodology, ESL, and business and technical writing courses at the University of Arizona, and consults in a variety of ESL fields.

OTA begins assessment

by Ed Gueble

In October, the Congressional Office of Technology Assessment (OTA) began a comprehensive two-year assessment of literacy and the technologies to improve it, directed by Linda Roberts of the Science, Education and Transportation Program. The study will focus on how people learn and what they need to know in the workplace, the home, and the community.

The proposed study shows, concretely, the high extent of federal interest in adult literacy education. As Forrest Chisman writes in *Leadership for Literacy* *(see review, page 6)*, Congress recently "discovered...that adult literacy instruction could be a solution to a wide range of problems in other federal programs with which it had been struggling for some time....The result was a stream of legislation that treated adult literacy not as an end in itself, but as a means to some other goal."

The project proposal itself notes that "making America smarter has become the rallying cry of policy makers at all levels." To add eloquence to that cry, OTA will "examine how technology can offer new resources and create new opportunities to reach learners and improve productivity of learning... [identifying] ways to increase learning access in existing programs and in new ways, overcoming economic, social, institutional, and technological barriers." The report will detail the state of knowledge, including what people know and need to know, and how they learn. Of the greatest importance, OTA will "look at the current base of adult education and family literacy services in schools, community colleges, community-based organizations, volunteer networks, libraries, and business."

Focusing on the deployment of technology, OTA will answer questions which include the following: What can be learned from institutions that use technology well? Under what conditions is the use of technology most effective and appropriate? What type of social and institutional arrangements lead to success in learning? How can programs tap into available technology or share costs among programs? What role can government and the private sector play?

"Making America smarter has become the rallying cry of policymakers at all levels."

What applications work well? Is the marketplace producing the kind of resources that programs and individuals need? What barriers to the effective use of technology exist?

The challenge to OTA is to find the unlikely, the innovative, the integrated solutions to a problem that has, despite the commitment of many individuals and the mobilization of considerable resources, hovered well beyond reach of a solution. As the project notes, ABE basic grants support programs that reach about 3.5 million adults while as many as 30 million are without functional skills. We can only hope that the OTA report is the prelude to increased funding of adult education, which at the current rate of $185 million per year is roughly equivalent to the amount allotted to military bands. Underlying the request by Congress to the OTA, we hope, is the willingness to spend more if greater success can be gained per dollar.

One of the major obstacles confronting Roberts and the OTA is the fragmentation of the adult literacy field. Funding sources are fragile and respect is hard to come by, so projects and their representatives become self-protective, hiding their failures and belaboring their successes. By all accounts, the representatives of literacy programs, when assembled, are a secretive and mistrustful lot. The OTA report may be a terrific opportunity to turn that description on its ear. ■

New! Computer Software for Adult Literacy

GOAL

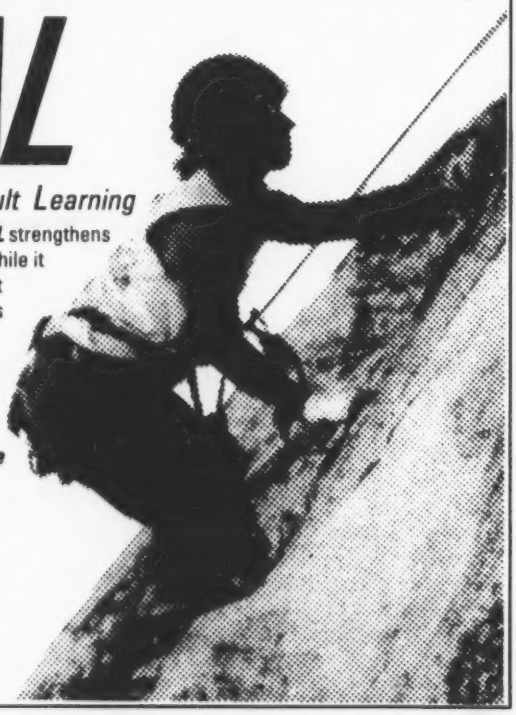
Giving Options through Adult Learning

Designed specifically for adults, ***GOAL*** strengthens basic reading and vocabulary skills while it provides adult learners with important information on relevant topics such as life skills, health, and employment. For 2nd to 6th grade readability. Prices start at $249.95. Available for IBM/Tandy/PC compatibles.

For a FREE informational brochure and adult literacy position paper, call toll free:

1-800-545-7677

and ask for Education Sales.



Davidson.

Teaching Tools From Teachers

P.O. Box 2961, Torrance, CA 90509

Software review: Reading Realities combines literacy and life skills

by Sara Armstrong

"How can I live with myself for the rest of my life? I killed my best friend and I'm still alive." This first line from a story entitled "Drunk Driving" immediately grabs students' attention. Since people become better readers by practicing the skill—that is, by reading—the question is often, how we can we motivate them to read? Subject matter can be the key. Teacher Support Software, Inc., offers two excellent programs which should be considered for adult learners, although their original intent was for a different audience.

Reading Realities was designed to catch the interest of "at risk" junior and senior high school students. Reading Realities—Elementary Series was developed for students in grades 2-6. Each package consists of 15 student disks, five on each of three general topics, as well as management, scores, and data disks. Each student disk includes three stories at the same readability level, 2nd grade through 6th grade. Student disks for both packages follow the same format, which includes pre-reading activities and reading, writing, and comprehension sections. An exciting aspect of both programs is the possibility of hearing the stories as they are read—with Slotbuster speech card added to your computer.

It's the story topics that make these packages so special. Reading Realities presents stories under the general headings of real-life issues, jury series, and careers. Fifteen real-life situations, such as having AIDS, dropping out of school, being a prisoner of war, living with a handicap, dealing with peer pressure, and being deserted by a parent, are presented in story form, at specified reading levels. The student can choose to read the story one word at a time, phrase by phrase, or a whole screen at one time. If either of the first two options is chosen, the student advances to the next underlined word or phrase by pressing the right arrow key. If the student selects the whole screen mode, advancing to the next screen is done by pressing the spacebar. At the end of the passage, a words-per-minute reading rate is given to students who have read whole screens. Students can switch among modes at any time during the story.

"Students make decisions as to innocence or guilt in murder, arson, drunk driving, stealing, and child-abuse cases."

The second group of stories are in what is called the jury series. Here, students select stories to read in which they will be asked their opinion as members of a trial jury. Students make decisions as to innocence or guilt in murder, arson, drunk driving, stealing, and child abuse cases.

Stories of people who have chosen a variety of careers are offered in the third group. Some of the careers include chef, secretary, teacher, hairdresser, banker, sportscaster, actress, doctor, computer programmer, inventor, and owner of a small business. These are success stories, often describing the character's battle to overcome obstacles. In each of the three groups of stories, each student disk includes three stories at a given readability level, 2nd through 6th.

Reading Realities—Elementary Series is made up of disks which include stories about school, family, and personal situations. For example, school issues include "I'm Always in Trouble," "Reading Isn't for Me," "I'll Never Cheat Again," and "School Projects Aren't So Bad." Family issues disks cover topics such as babysitting for a brother, living with a stepdad, running away, wanting mom home instead of at work, and having too many chores. Stories on the personal concerns disks may be about feeling fat, unliked, awkward at sports, poor, or dumb.

Both Reading Realities programs include reading and writing in the options available to students. Students can view vocabulary before reading a story. Ten to fifteen words are listed, and the student can select a word by highlighting it, which will yield a screen showing the word, its part of speech, a definition, a sentence using the word, and a synonym and antonym.

An "activity menu" is available, which gives several comprehension options: multiple choice questions, cloze test, discussion questions, or creative questions. Ten multiple choice questions are available through the first option, five of which are recall, and five of which require some degree of inference based on the story. The student gets two attempts at answering each question, and feedback is immediate. At the end of the test, a score is given.

Students have several options available when they select the cloze test. They decide whether every fifth word, every tenth word, or only vocabulary words will be omitted. They also decide whether the whole word is missing, or the first letter is given. They are then asked to read the story they just finished, supplying missing words. Students are offered help if they get stuck, and are given credit if they type more than half the letters in the missing word. Again, a score is given at the end of the test.

Five questions based on the story make up the discussion section of the compre-

con't on page 20

A few books on literacy, the workplace and the culture

America's Choice: high skills or low wages! Report of the Commission on the Skills of the American Workforce. *Available by mail from the National Center on Education and the Economy, P.O. Box 10670, Rochester, NY 14610, 1-716/546-7620. Cost is $18.00, all orders must be prepaid or accompanied by a purchase order.*

Released in June, 1990, this brief, clear book represents the work of a coalition of business, labor and academic interests, convened to propose a revamping of the American educational system so as to alleviate the crisis of economic productivity. The commission reports that the American model of the last 80 years, in which workers are paid relatively high wages to do tasks that required relatively low skills, is no longer sustainable: the country as a whole will either raise its level of skills and so raise wages further, or languish with a low-skills workforce that will drag wages and the economy down. The council's proposals focus on beefing up education and apprenticeship opportunities for students who are not college-bound, with most of their suggestions restricted to the organizational level.

In the modern era, American productivity increases have resulted from increases in the size of the workforce—more people making more things. Such gains do not result in gains in wages, and in any case, our slowing population growth results in decelerating productivity. According to *America's Choice*, "during the past two decades, our productivity growth has slowed to a crawl. It now takes nearly three years to achieve the same productivity improvement we used to achieve in one year." The situation will worsen because American workplace practices are positioned between two more competitive alternatives: the low-skills/low-wage countries of the third world, with increasing access to technology, are better positioned for mass production of low-cost goods; the high-skills/high-wage workforces of Western Europe and Japan excel at providing services and producing goods that require flexibility or input from workers, and they compete with other nations by involving the entire workforce and educational system in the pursuit of greater productivity from individual workers and from manufacturing practices.

The typical American industrial plant is set up in along the lines of the Taylor model, as introduced by Henry Ford in 1910, with each worker repeating a single task which contributes to the manufacture of the whole. At least two brakes on productivity are associated with this model. First, individual workers succeed in the system by keeping their inside knowledge and techniques to themselves, because they are competing against the clock and against each other. Second, changes to or added complexity in the process—stemming from the introduction of new technology or practices, redesign of the product or whatever—demand the growth of a secondary level of workers, composed of supervisors and managers and operating engineers who have greater knowledge of the process and equipment involved. In the "high performance work organization" championed by *America's Choice*, workers accept greater responsibility and more diverse tasks. Forms of these organizations could apply to manufacturers and service providers, such as banks and insurance companies. (Service providers will make up the bulk of American businesses in the near future.) To enable the American workforce to participate in these organizations, the council offers five main recommendations, summarized below:

Recommendation 1: *Establish a new educational performance standard, which students should meet by age 16.* Young people would take a series of "performance-based assessments" beginning as early as middle school and coupled to the curriculum, leading to a "Certificate of Initial Mastery." Included would be basic literacy and computational skills and subjects such as math, technology, the sciences, history, geography, economics and English. National standards for the Certificate would be "benchmarked to the highest in the world." The Certificate would enable students to proceed to either college preparatory instruction or a combined school and technical/professional training program.

Recommendation 2: *States, taking responsibility for the universal achievement of basic education, should create alternative learning environments for those who cannot achieve mastery in regular schools.* Specific measures would include the establishment of youth centers, incentives for regular schools to retain students, preschool education and safeguards for the health and standard of living of children, and strengthening the link between success in school and success in the workplace.

Recommendation 3: *A comprehensive system of Technical and Professional Certificates should be created for students (the majority) who do not pursue a baccalaureate degree.* Covering the entire range of service and manufacturing occupations, sequences of certificates would attest to mastery of increasingly complex skills, and would be open to students and workers throughout their careers.

Recommendation 4: *All employers should be given incentives and assistance to invest in the further education and training of their workers and to pursue high productivity forms of work organization.* The report cites laws and policies in other countries —national full-employment policies, stringent severance and layoff notification laws, high minimum wage laws and laws requiring union approval of management actions—as ways in which business are motivated to invest in their workforces, but the commission here makes no formal recommendation. The report also suggests that the depart-

con't on page 18

REASONING SKILLS ON THE JOB™

Employers must have workers who can use their heads.

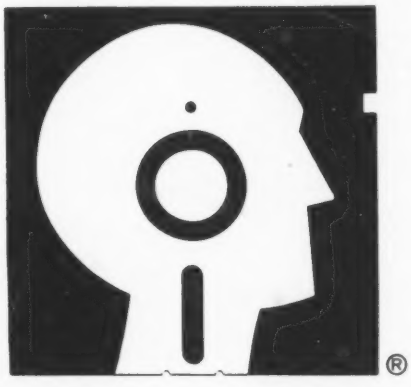
Their corporation's future depends on it.

Perhaps no other workplace basic skill is as important as the ability to use one's head to solve work-related problems. From entry-level positions to middle and upper management, employees must be able to critically think and solve work-related problems.

No longer are the three Rs enough. Employees must be able to apply what they have learned and be able to critically think and solve work-related problems. We at The Conover Company have been working for almost ten years on developing our work-related basic skills programs.

REASONING SKILLS ON THE JOB™ is the newest program in a series known as our WORKPLACE LITERACY SYSTEM™. Other programs within this series are LEARNING ACTIVITY PACKETS (LAPs), MATH ON THE JOB™, ENGLISH ON THE JOB™, and SOCIAL SKILLS ON THE JOB™.

For free information on our reasoning skills program, as well as other programs in our WORKPLACE LITERACY SYSTEM, call or fill out the coupon below.



For a free catalog, fill out and return our coupon today.

20 ROJ

Name _____

Position _____

School _____

Address _____

City _____ State _____ Zip _____

Phone _____

The Conover Company Ltd.

PO Box 155 Omro, Wisconsin 54963 800-933-1933

Toronto

con't from page 1

$125 (Canadian) per group of up to seven learners. At the Microtron Centre itself, which is part of Vaughn Road Collegiate, similar instruction costs only $2.50 per hour, per person. In either case, the programming is remarkably cheap, compared to industry norms. The affordable prices, made possible by York School Board funding, ensure wide accessibility to computer learning. The most popular course offerings are DOS, D-Base, WordPerfect and Lotus 1-2-3. Also offered are courses in electronics and microcomputer repair, mathematics, life skills, English and social sciences. Many students follow an independent learning plan rather than attending formal classes.

Participants include workers in local service-based industries, seniors, recent immigrants and the unemployed. They may not speak English well, they may not read, they may have other problems that compromise their ability to succeed in society. According to Sloan, the driving philosophy behind the center is to use computers in a positive way. "There's no doubt about it—this kind of technology is displacing a lot of people from jobs. It's omnipresent. We want to present computers as tools that can help people adapt, rather than lost training opportunities in jobs that they no longer have. We've helped thousands in the last few years."

My visit to the mobile classroom, parked at Doctors Hospital, coincided with Toronto's first bout of severe winter weather. The warm bus interior was a welcome respite from the cold and snow. While seven women from the hospital studied, Instructor John Grant moved around the bus offering instructions and tips.

According to Michael Sloan, Grant's particular mix of abilities is "damn near irreplaceable." Affable and bearded Grant has a doctorate in philosophy from the Ontario Institute for Studies in Education (OISE), and a history in the house-building trade. His passions for music and computers come together in his after-hours hobby, writing music on an Atari program. He claims he's not a teacher by trade, but he also teaches night-school philosophy along with the regular classes at the Microtron Centre.

Grant's qualifications for this work include not only brains, but brawn—he is also serves as bus driver and repair crew while on the road! "I'm a fanatic about auto mechanics—I love to open up a manual and learn how to fix things. The first time I looked at this bus, it was pretty scary, but you get more comfortable after six or seven months of driving. You never really feel completely confident with such a big vehicle, though, because you're always wondering exactly what that other end is doing while you're driving or backing up. You don't want to hurt anyone." He concludes, however, with a mechanic's satisfaction, "It's never gone down while on the road, though."

"We want to present computers as tools that can help people adapt, rather than lost training opportunities in jobs that they no longer have."

John Grant's philosophy of education is a good match for the center and his students, too. "I don't think there's any hard or fast distinction between learning literacy or learning technology. Computers are all part and parcel of language learning, just as much as sitting down to do ESL. One of the main forms of communication today is computers—in the future you won't be able to hold many jobs without some knowledge of computers." He is an equally strong supporter of bringing learning to the people, outside of the classroom, still a controversial notion to many educators.

As I arrived at the bus, students were in the midst of a session on DOS and basic computer familiarization. Grant carefully led the participants through their paces, gradually covering, hands-on, the subjects of loading DOS, formatting diskettes, and copying files and diskettes. Each learner was seated in a comfortable swivel chair, facing a Commodore system with two floppy drives and a hard disk. (The Commo-

Inside the Microtron mobile lab.

BEST COPY AVAILABLE

dores are PC-compatible; Sloan feels that the big brand names aren't worth the expense.)

"The asterisk on the screen is just like a little question mark," intones John Grant. "It asks the computer to find a file." Beside me, Susanna, a hospital employee, is busily following Grant's instructions and keeping up a conversation with me. "I've learned a little bit about computers, mostly from my children. It's amazing what children can do—they're not afraid to press keys. It's nice to have the bus come here, because my supervisor wouldn't want me to leave the hospital to take an outside course."

Winnie, a recent immigrant from Hong Kong, appreciates the background information she gets from the DOS session. "This gives me the sense of what happens from the very beginning; now I know what some of those terms actually mean."

Similarly Jane, from Viet Nam, finds things she never learned before that she hopes to apply in her translation work, in which she'll use Chinese and Vietnamese software. "I always wanted to know, because it's interesting and popular to use computers. I prepare myself to do some translation."

To help explain formatting, Grant asks the students to imagine how useless a blank LP from the record store would be. Similarly, he compares the use of directories to the fact that New York, being a huge city, has not one telephone book, but several, for the Bronx, Manhattan and so on. His conversation aims to be as down-to-earth as possible. "In this city, there's no way to avoid addressing ESL and literacy issues in education. I try to gauge my students, and use lots of body motions, ostensive definitions and repetition where I sense people having difficulty. Minimizing the number of words and going slow helps as well."

With the gentle whir of the bus's heater in the background, Grant takes the students on a brief tour of Lotus 1-2-3. The terminals are all secured with

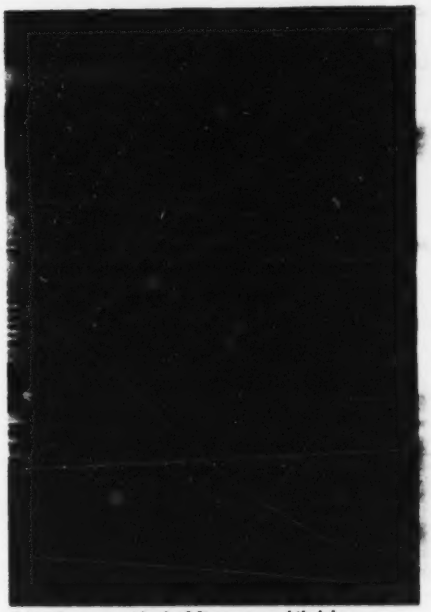
"In this city, there's no way to avoid addressing ESL and literacy issues in education."

bungee cords to the table surfaces which extend along each side of the bus. Above each station is a bright red set of numbered canvas pockets for storing disks and papers. The bus gently rocks as Grant moves up and down, helping learners here and there. "Sometimes the hard drives get out of alignment because of the bus bouncing from place to place," he says in consolation to someone whose system must be re-booted.

The mobile class attracts a real diversity of learners. Today's group are fast-trackers (at least compared to my own knowledge of DOS!), and the session is packed full of information. "The tough part is making the judgement call about how far to go to keep the whole group learning," notes Grant. "Many of these people don't have computers at their desks, so this is still rather theoretical for them. For now, this hospital simply doesn't have the bread for computers, unlike some others which seem to be loaded when it comes to technology," he says, remarking on a familiar issue in the Ontario health-care sector.

It's almost time to wrap up the morning session, and Grant asks his learners to go "back to boring old DOS." Susanna stops him, saying "you shouldn't say that! I find it quite exciting." Looking at her computer screen full of characters she has called up, she continues, as an aside to me, "I think it's just amazing!"

John Grant notes that it's not uncommon for students to continue with classes back at the Microtron Centre or with other formal classes. Several of the students mentioned how eager they were for the return of the Microtron bus later in the winter. The success of the program is measured by the Mircrotron Centre and the York Board of



John Grant astride the Microtron mobile lab.

Education, and involves reviewing participant evaluations, organizational reactions, cost factors and numbers of students. Grant notes that some people question the cost-efficiency of running the mobile service, but feels that the bus is definitely reaching students who would otherwise not have access to hands-on computer learning experiences with such individual attention. Grant and Sloan both say that evaluations from students have been "uniformly very, very high."

As I prepare to brave the frigid winter air to help John Grant manoeuvre the bus through the unseen hazards of the hospital parking lot, he adds some final thoughts. "Some might think that teaching the same programs over and over is a drudge, but it isn't. The people and the sessions are never the same, and always a challenge. Driving the bus is the hardest part of the job, no doubt about it!"

Brent Poulton is an adult educator and writer with Frontier College, a national literacy organization based in Toronto, and a member of the Metro Toronto Movement for Literacy's Computers in Literacy network. He can be reached at Frontier College, 35 Jackes Avenue, Toronto, Ontario, M4T 1E2, Canada.

BEST COPY AVAILABLE

LA Times Bus

con't from page 1

school the mothers are working in here on the bus.

"Most of these women are literate in Spanish. Here they get a chance to work on their English, but also to find out about computers and learn how to help their children with their homework. Their children are working with computers, so we hope this session will give them some common ground."

"A lot of the women have said 'If I'm going to do something, I have to do it during the day. Night school is out because of my husband.' They're just ecstatic to have the chance to do something for themselves," she says. "Every morning I can hear my nine o'clock class laughing and giggling and carrying on as they're coming down the street."

The L.A. Times Mobile Reading Lab outside of the Times-Mirror building in downtown Los Angeles.

Mobility = visibility

There are a lot of literacy labs around the country. Not enough by any means, but they aren't so rare that when you hear about one, you rush down the street to take a look. But there aren't many shiny, 32-foot-long literacy labs that roll across the Los Angeles freeways, tricked out with spiffy graphics and loaded with computers. One, really. And when that one arrives it draws a crowd.

"We sent the mobile lab to Rockwell International for the opening of their on-site literacy lab," Neder says. "It drew the employees out to see the interesting vehicle, they began using the computers inside, and then they found out they could work on the same lessons at the lab opening that day at Rockwell. We ensured a good turnout for the start of their program.

"The best thing was that it hooked the interest of Rockwell management as well. Now they're considering a proposal to do a mobile science lab to travel to schools." There are a lot of literacy labs. The particular importance of the Times' labs lies in the commitment of the parent Times-Mirror Corporation and the pride which the company takes in that commitment. Times reading lab staff have advised literacy projects developed by the Macon Telegraph-News in Georgia, the Arizona Republic-Gazette and the Wichita Eagle-Beacon in Kansas. Another Times-Mirror paper, the Hartford Courant, in conjunction with the YMCA, has established a lab based on the Times' model, as is the lab at Rockwell.

"We've gotten newspapers thinking about what their role is, in a more active capacity, in their communities," Neder says. "Now the Regional Transit District (RTD) is coming over to take a look, and I'm going to make a pitch that they should convert one of their buses into the service of literacy and training vehicle. They have ESL needs and literacy needs among their mechanics, and they're spread out all over. It's perfect."

The mobile lab, she says, "is a wonderful demonstration tool, a motivator for everyone who uses it, whether they're employers, tutors or learners."

Once RTD bites on the bus idea, Neder will up the ante. "I say whatever you do for your employees, you should consider making it available to the community as well." When a company expresses interest in contributing to the community, she turns the tables and suggests that they also provide resources for their own employees as well.

Mobile evolution

The idea for a mobile lab grew out of the unquestioned success of the Times' downtown reading lab. Christofferson and Neder are discovering, however, that the mobile lab's unique requirements go beyond secure, level and well-ventilated parking. The downtown lab was based from the start on IBM's integrated instruction system, Principle of the Alphabet Literacy System (PALS); limitations in the applicability of PALS to adult low-level learners have led the downtown lab to augment it with other software choices. In the mobile lab, which is generally scheduled for 12-week visits to sites, PALS is still less practical.[1]

"We have PALS on the road," says Christofferson. "However, I don't use it much in what I do, because it's designed with a 20-week program-cycle in mind. I don't stay in the area long enough, so I improvise." Christofferson has a more-than-adequate catalogue of software from which to create personalized instructional plans for her learners, but the 12-week sessions limit the mobile lab in other ways that have disturbing implications.

No one learns to read in 12 weeks, a fact the Times mobile project is still working to accommodate. The mobile lab makes itself available as a tool for existing literacy and social service programs, depending on those programs for site-visit publicity, a supply of learners, and for integrating the learners' achievements in the mobile lab with a program of ongoing education. In the best situations, the Times Mobile Literacy Lab works as a community showcase for existing literacy organizations and a chance for literacy program workers and learners to 'test drive' an up-to-date library of instructional software and videodiscs to better understand their own specific requirements.

In the worst cases, when local organizations fall down in their part of the partnership, learners may be left clutching at diesel exhaust. When Christofferson wheeled the Mobile Reading Lab into the parking lot of the Orion Parole Reentry Center, in the San Fernando Valley, she hopped out, said "Hi, here I am," and was told that no classes had been scheduled and only a few learners were around. "The guy was telling me, 'We had a bunch of 'em sign up, but we can't make 'em come down.' And these are people who aren't hard to reach, they're in the facility a lot, and they're on probation or on parole."

With the few learners who did show up at Orion, Christofferson—who would make a viable candidate for most upbeat person in L.A.—had no problem. "Once I get them in here, I've got them hooked," she says. "They see how nifty it is to do the work in here, and to gain from working. All of these guys were just out of jail, some of them look like the kid next door, and the question they all asked was, 'Why didn't I have this when I was in the jail? I wasted two years in there.'"

But the Times mobile lab is a valuable resource. The low turnout and chancy organization at Orion led the lab administrators to cut that session short. On her last day there, Christofferson fretted about leaving one regular student, who had failed to show up that

Donna Christofferson drives the big bus.

day. "I went looking for him," she says, "because I really wanted to say goodbye, and to give him a bookmark. The Orion staff said that he was around, but I couldn't find him."

As the bus was pulling away from the center, she says, he showed up. " 'I don't like to say goodbye,' he told me. I learned a lot from him—he was no dummy, he was a smart man." It's ironic. That's what we call it when something painful and quirky happens. When this man was locked down, he couldn't get anywhere to learn; now that he's free, the place to learn keeps rolling away. It's ironic.

But in the 9 months—only three 12-week sessions—that the mobile lab has been operating, the Times literacy project administration has learned to be more demanding of and selective in its choice of partners. Recent projects, such as the one for Hispanic mothers at Telfair and a project with Soledad Enrichment Action, which successfully brought members of different gangs together in a program for juvenile offenders, have combined full utilization of the mobile lab's unique appeal with programs that take off from the lab's visit. "The session at Telfair has given them a tremendous boost," Neder says. "Not in terms of grade-levels or tests—that wasn't the point—but those parents have gained self-esteem and have been hooked into the new Telfair Parent-Involvement Program. And we've given the program the chance they've wanted, to evaluate the effectiveness of computers."

But adjustments are still needed. Safeguards must be instituted to protect individual learners from partnership breakdowns. At the very least, Christofferson must be supplied with contacts at local literacy, ESL and ABE programs, so that she can hand off prospective learners to people in the area who will meet their needs. A general referral to 'the library' is not enough. A non-reader's first visit to a literacy program may represent a particular, fragile opportunity, as well as a special victory for the Times mobile lab. Every effort must be made to convert that opportunity into successful learning.

Faith restored

But to talk to Barbara Neder and Donna Christofferson is to believe. They may careen in Times Mobile Reading Lab into places angels fear to steer, but they'll keep honing back in on the goal, a fully skilled community, and refining the use of the Mobile Reading Lab as a means to achieve that goal. Thumbing back to a page in her own book, Neder is dispatching the lab to the Times' own plant in Olympia, outside of L.A., making her community resource available to Times employees who are too far from downtown to make use of the main reading lab. Never one to be stingy with a good thing, Neder plans to invite employees of Marriott Food Services, Inc., which feeds the Times Olympia workers, to attend the session as well. Neder can be sure the Olympia plant will provide the organizational support and links to local programs which the Mobile Reading Lab needs. And the lab can easily be scheduled to return for another session, should that step seem necessary.

Filled as it is with superlative technology, the downtown lab can nonetheless be duplicated—and no doubt exceeded on occasion—by low-budget community programs using second-hand PC-clones, folding chairs, and freeware (and a blackboard and books and paper). The Times Mobile Reading Lab, appropriately used as an introduction for learners to a network of literacy services, and as an aid to programs in the

con't on page 17

Workplace

con't from page 1

Any literacy project isn't better than none, if the project just tarts up an ugly problem so that we think we can live with it.

To create a literate society out of the mess we're in, we must demand honesty of ourselves and others. In the fall of 1989 the nation's governors and President Bush met to arrive at a policy for education reform. They issued as one of their goals the following: "By the year 2000, every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship." Every year, however, we are welcoming into our society, via immigration and failure to fund and reorganize our schools, more adult Americans who lack functional basic skills than Americans enrolled in remediation programs. And we know that some of those learners who do enroll never achieve functional skill levels. I object to the power of our leaders to hide our dire needs by setting imaginary goals they have neither the power to meet, nor any intention of meeting.

By the year 2000, all of the eight children who live down the street from me in a tiny apartment, and who have stopped going go to school, will be adult non-readers. If they're lucky.

With regard to the use of technology, the situation is particularly acute. The biggest developers are scrambling to deliver an interactive/multimedia one-two punch to their competition, by aligning themselves with hardware manufacturers and film or TV studios, including Lucasfilms and MTV. There's a lot of money involved (not in community literacy programs and not in the government which funds them), which complicates the picture. New ideas for very expensive products—products that affect the workplace, the community, the national economy and people's lives—are sprouting all over. But we still haven't developed effective standards for project organization, the proper uses of technology, or the linking of workplace, community, family, ESL, and volunteer literacy efforts into a coherent, integrated system of accepted methods, recognized goals and shared resources.

This article is not, however, an editorial. Nor is it intended as a dose of words to be taken like medicine. It shall, we hope, be rescued by a...

Case in point

The State of Mississippi points, as it should, with great pride to a number of literacy programs that have been developed under the leadership of Governor Ray Mabus and his wife, Julie. Mobile learning labs, projects in family literacy, projects tied to social services and the workplace are all coordinated by the Governor's Office for Literacy, headed by Mrs. Mabus, adding an enviable coherence and sense of communication to the state's overall attack on illiteracy.

"Any literacy project isn't better than none, if the project just tarts up an ugly problem so that we think we can live with it."

The Peavey Electronics Corporation/ Meridian Community College partnership, one of Mississippi's showcase workplace literacy programs, opened its doors in the summer of 1989 as a pilot installation of the Job Skills Education Program. JSEP was originally developed by the U.S. Army, Florida State University and the Ford Aerospace Corporation. *(See issues 3.1 and 3.3 for information about JSEP and technology transfer.)* With over 1900 employees, family-owned Peavey Electronics, manufacturers of electronic musical instruments and equipment, is the largest employer in the town of Meridian. Peavey saw the partnership and JSEP as the means to improve the competitiveness and efficiency of their plant, and to maintain the company's commitment to their community. Like many larger manufacturers and service providers, Peavey had already tapped and drawn the sector of the area's work force that possessed adequate education and skills. They were then led to hire workers who would did not meet their earlier skills and education criteria.

The solution which JSEP provides to this skills gap is unquestionably direct. Jobs at the plant are matched to specific JSEP lessons, yielding "job prescriptions" which will give the learner drills in appropriate skills, ranging from basic spelling and arithmetic to oscilloscope reading, computer use and trigonometry. Analysis of the literacy and skills involved on the Peavey plant floor, based on interviews, observation of competent workers and the gathering of documentation, generated four prescriptions: subassembly/assembly line workers; computer numerical control operators; inspector testers/recycle technicians; cabinet assemblers.

As far as the interests of the learners go, JSEP's salient benefit lies in the fact that the prescriptions link straight to jobs, so the skills taught are useful and important. Jean Willis, the JSEP coordinator, says that learners can see the connections between their progress on JSEP and the possibility of advancement at the plant: "We had this young man who signed up for lessons, he was a packer, an agreeable person in a dead-end job. He completed a few different lessons very quickly, eventually running through parts of almost 30 lessons. He left a while ago, but I found out last week that he's now running a computer numerical machine and reading Statistical Process Control (SPC) charts. I thought that was neat."

During the pilot program, run during the spring and summer of 1989, Peavey donated the employees' time, allowing them to attend classes two hours every other day. According to the news release issued by Meridian Junior College, sixty-four Peavey employees took part.

"The biggest developers are scrambling to deliver an interactive/ multimedia one-two punch to their competition, by aligning themselves with hardware manufacturers and film or TV shows."

The news release reports that 55 percent of the supervisors interviewed had observed production increases and greater cooperation among employees during the six months of the pilot project. Immediately after completing the program, thirteen of the initial sixty-four participants applied for more advanced jobs, with four receiving promotions.

That information is encouraging, but hardly sufficient for informed evaluation of JSEP and its application in the Peavey/Meridian partnership. Without adequate control data, understanding of the effect of the workplace partnership will forever be limited to anecdotal evidence, as above, and considerations of output, which are subject to many factors other than the specific skills enhancement of the workers. For all projects—and particularly for a pilot or demonstration—evaluation must be built in from the get-go if their users, and prospective users and developers who come after, are to have a fair shot at judging the value of the project. Without evaluation we have no way of knowing what parts of the problem are being addressed and what parts merely dressed to kill. More important, however, we have no way of seeing the effects on the workers except in terms of their work.

For good reasons, Peavey Electronics has entered into a workplace partnership which defines as its goal the rapid enhancement of a narrow and specific range of skills. But in one important sense, that of the applicability of these skills to immediate needs and experiences, JSEP centers its instruction smack dab on the learner. The worker can learn to succeed at the immediate tasks involved in his work. Absent any encouragement to use outside materials or interests, and given a predetermined pathway through the prescription, the importance of the material's appeal to the learner's sense of self-interest and performance is magnified. In workplace literacy projects of this type, there may be a need for learner-centered evaluation, compensating to an extent for instructional designs which give the learner little real power or choice. Post-instruction interviews, surveys of the entire plant work force, testing on material unrelated to the task description—all of these steps could augment understanding of the partnership's connection to learners.

For Peavey Electronics, faced with a skills breakdown and the need for quick repairs, JSEP must seem like the perfect tool for the job—use a wrench to tighten a nut, a hammer to drive a nail, task descriptions and job prescriptions to increase productivity. For many developers, computer-based and computer-assisted instruction are considered ways of giving learners zillions of repetitions of a given exercise, sparing human instructors for the more properly human parts of instruction. For the people who deliver literacy instruction day in and day out, the experts in adult literacy, keystone values often focus on learner-centered and learner-driven instruction. No one of these values overrides the others—in different situations, different concerns will predominate. But in systems intended to effect fundamental changes in the skills and lives of learners, the dominant value—productivity, the need for completely automated drill, or attention to desires of the learner—must be recognized outright so that conflicting and complementing values can be served as well. A well-designed project will, I believe, be a project grounded in an understanding of the ways in which learner-centered values, drill, job-specific material and other elements can be *combined* to achieve a specific goal.

Willis values the aspect of computer use that drives me crazy. "The computer absolutely forces you to follow directions," she says. "If you make a mistake, you get it wrong. It's simple. If a student fails a task three times, we stop and I teach it individually with paper and pencil, or we go through the lesson on the computer together." Willis values the discipline and precision that computer use can require.

She raises questions, however, about JSEP's overall suitability for remediation. Lessons fall into two types: five-to-15 minute diagnostic reviews and longer remedial lessons that require from 10 minutes to an hour of computer time. Although the developers of JSEP have claimed, as recently as 1989, that the system is the largest computer-based skills program for adults, its 300 hours of instruction spread thinly to cover oscilloscopes, trigonometry, spelling and such. To compensate, Meridian and Peavey have recently installed a system devoted to basic instruction, developed by Computer Systems Research, Inc. (CSR).

"Peavey donated the employees' time, allowing them to attend classes two hours every other day."

"JSEP is more work related, teaching them to identify electrical components or how to work with an oscilloscope," she says. "We're beginning to use the CSR programs more now, for those people who need practice with remedial concepts." If JSEP's strength lies in its ability to introduce specific new material—graphing, report writing, inventory control—that strength needs to be acknowledged, and examined for its fit with the proposed pool of learners. Again, clear sight and honest talk is absolutely necessary if we're going to avoid clothing a literacy problem in an ill-fitting solution. That JSEP may lack

con't on page 14

Workplace

con't from page 13

ample drill in low-level skills is by no means a disqualifying weakness. However, if the Peavey/Meridian partnership doesn't understand the situation, then a problem springs up; if the partnership doesn't know the level of skills of its pool of prospective participants, a problem springs up.

Beyond guiding the application of JSEP, Willis is the linchpin connecting Peavey management, workers and the community college. Her work takes her from the Meridian Partnership Lab—where she administers needs-assessment tests, instructs, and coordinates computer use—onto the floor of the Peavey plant, where she collects information for the task analyses and introduces the project, attracting new learners.

The partnership is instructor centered, then, but it is hardly instructor driven. Willis added a fifth task-based lesson-series, for Statistical Process Control, as a separate component enhancing the training given in the other four prescriptions. She created diagnostics and lessons similar to and complementing the original JSEP lessons. The format? Paper and pencil. "There is an authoring capability in JSEP," she says. "I do not know the language, but I think it's probably pretty complicated.

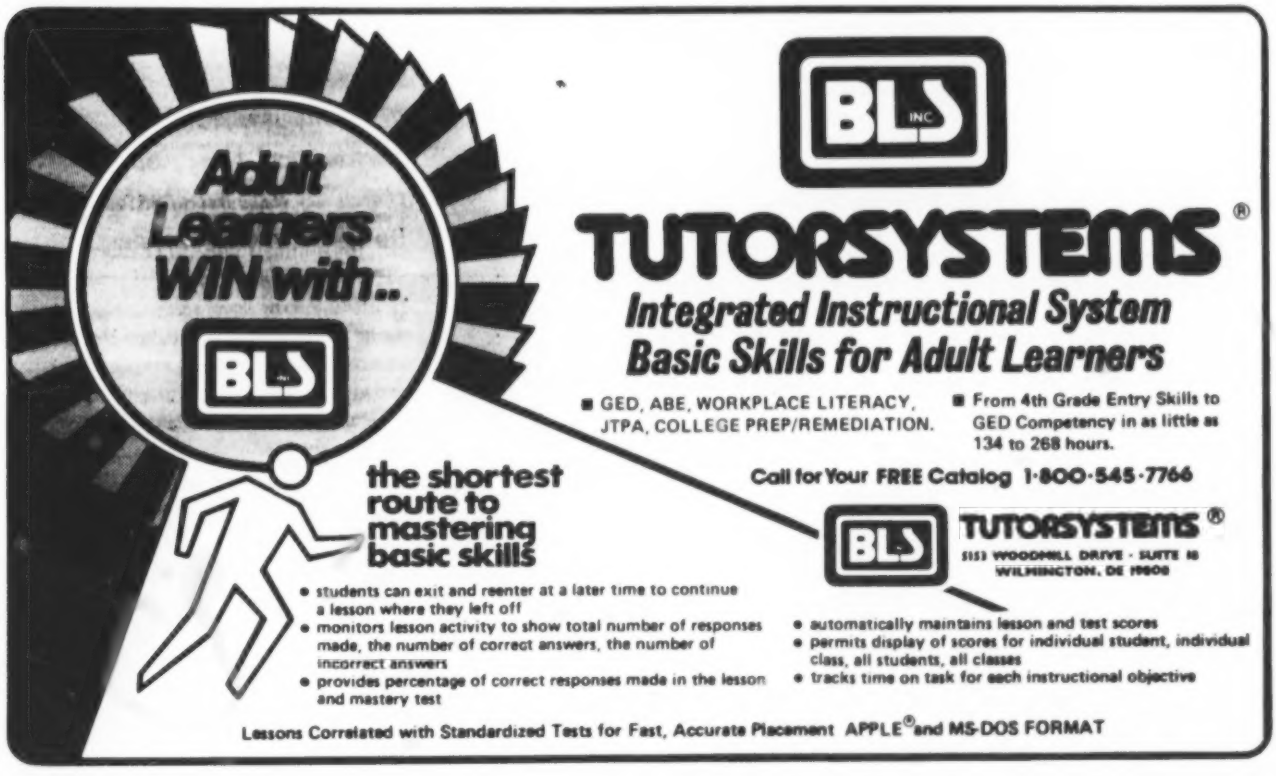
"For all projects, and particularly for a pilot or demonstration, evaluation must be built in from the get-go if their users, and prospective users and developers who come after, are to have a fair shot at judging the value of the project."

"My ideal would have been to be able to put the new lessons for that SPC prescription into the JSEP program. I would have loved that. The way it's done now, they have to shift back and forth. Had it been on the computer it would have flowed automatically."

I asked her if it wasn't easier just to write up exercises the old way, instead of learning JSEP's authoring system. "Yes," she said, "but I would have liked the challenge."

A prescription

At the risk of repeating myself: the limitations of the JSEP pilot project in Meridian don't center, necessarily, on JSEP—the program has an authoring mode, after all, and its shallow reservoir of basic skills instruction has been augmented—but on the designs for its implementation and evaluation. Educators at all levels, confronted with an explosion of technology, list in-service training as an essential need. Willis has


Adult Learners WIN with..
BLS
BLS INC.
TUTORSYSTEMS®
Integrated Instructional System
Basic Skills for Adult Learners
■ GED, ABE, WORKPLACE LITERACY, JTPA, COLLEGE PREP/REMEDIATION.
■ From 4th Grade Entry Skills to GED Competency in as little as 134 to 268 hours.
Call for Your FREE Catalog 1·800·545·7766
the shortest route to mastering basic skills
• students can exit and reenter at a later time to continue a lesson where they left off
• monitors lesson activity to show total number of responses made, the number of correct answers, the number of incorrect answers
• provides percentage of correct responses made in the lesson and mastery test
BLS
TUTORSYSTEMS®
5153 WOODMILL DRIVE · SUITE H
WILMINGTON, DE 19808
• automatically maintains lesson and test scores
• permits display of scores for individual student, individual class, all students, all classes
• tracks time on task for each instructional objective
Lessons Correlated with Standardized Tests for Fast, Accurate Placement APPLE® and MS-DOS FORMAT

clearly mastered the administration of JSEP instruction. Full implementation of the program, and in a sense full ownership of the program by its civilian recipients, requires the transfer of knowledge of the authoring capability as well as the hardware and software. If the JSEP requires programming skills beyond those of Jean Willis, the project can work out a deal with faculty in the computer science department. Or, seeing as public-sector/private-sector technology transfer is supported by the Federal Laboratories Consortium, draw on the federal scientists which the FLC makes available. *(See issue 3.2 for information about the FLC.)* Again, the choices made by or for the partnership must stem from clear-eyed assessment: because the program excels at instruction in specific tasks, usually involving recognition and manipulation of equipment or parts used on the job, the

"If the power to adapt and to incorporate new practices is kept from its users...JSEP is destined for rapid obsolescence, replaced in a* coup ironique *by paper and pencil."

authoring capability is doubly essential. Basic reading and math skills don't change (very fast); plant practices, especially in a company working to squeeze more productivity out of existing resources, are bound to change. If its power to adapt to and incorporate new practices is kept from its users—Peavey management as well as the learners—JSEP is destined for rapid obsolescence, replaced in a *coup ironique* by paper and pencil.

If you want to take some swings, the JSEP pilot program is an easy target: JSEP fulfills the mandate of law—the 1980 Stevenson-Wydler Technology Transfer Act—and tax dollars are involved in its initial development for the Army, so anyone and everyone has some stake (they can drive) in it. But examples of similarly misaligned goals and means appear in every aspect of the use of technology in literacy instruction, from project design to the selection of hardware to the blending of computers with volunteer programs.

The big integrated instruction systems take a good number of hits, in part because they cost so much that they restrict a project's flexibility and its ability to correct design errors, in part because they prompt fears of learners dumped at machines and told that the answer to their troubles is somewhere inside. These are serious concerns; educators and developers must be responsive to them. But we need the big systems—and a year ago I would have broken my fingers for typing that thought—because we need systems in the prisons, systems that can be installed at plants and kept open around the clock, systems that promote adult learner independence as well as reliance on the instructor or tutoring. But we need to manage our deployment of those systems, and we need to understand and publicize the differences between them. And we need to take steps to ensure their use in responsibly designed programs, whether in the workplace or elsewhere.

The Los Angeles Times Reading Lab, located in downtown L.A. in an annex to the Times-Mirror Building, began by basing its program around IBM's Principles of the Alphabet Learning System (PALS). They quickly found, however, that the PALS approach, which involves pairs of learning partners trading places between the keyboard and a workbook, created tense situations for their clients, primarily the homeless. "These people have learned to survive as loners," says Barbara Neder, director of the L.A. Times program. "The trust they need to work with their partners is not something that they want to learn, or necessarily something that they *should* learn."

Although still committed to PALS, the Times lab has gone about the acquisi-

"These people have learned to survive as loners....The trust they need to work with their partners is not something that they want to learn, or necessarily something that they* should *learn."

tion of a considerable library of single-skill instructional software titles to supplement their integrated system. The lab is thriving—their choice of PALS is perhaps not optimal, but because they have more resources then a great many literacy projects for the homeless, they are able make the necessary adaptations. It is of the greatest importance that the people at the L.A. Times Reading Lab relay their experience to other projects serving the same population, to government and foundation funders of literacy projects, and to IBM, the developer of PALS.

In fact, in monetary terms it is the systems developers who stand to benefit most by news of real-world failures and limitations. When pressured by literacy experts to develop an authoring system for the Computer Curriculum Corporation's adult ed software, the company's vice-president of marketing appeared to keep his mind closed tight as a drum in defense of his system. He later admitted that he went thereafter to his software designers, and demanded they start planning a system that would allow educators to input material. He did not change his mind out of deference to the superior knowledge of the experts; the suggestions made sense to him when he saw their potential to make dollars. With its nose for profit, industry will eventually choose the best of the available options for workplace instruction, even if these are less than ideal. And industry will push for alterations that serve their interests.

con't on page 16

Workplace

con't from page 15

Developers who research and respond to the users' concerns will thrive.

However, the ability to input parts lists and report forms and other specific materiaI may also lead industry and educators to flirt with dangerous consequences. Centering instruction on

Will we allow ourselves to be sold the idea as well that any piece of information technology—from JSEP to holograms to virtual reality—will change the situation for the better without the explicit development of guidelines and protocols for its effective use? We cannot afford to buy that idea.

the worker in frontline assembly, in numerical parts control, or component cabinet assembly—as opposed to centering instruction on the worker-as-a-learner-at-large—mandates the division of labor in the workplace, and sustains the devaluation of critical thinking and problem-solving skills. Each learner takes the course designed for a specific job, learning to read and do math in the process, but with the top-end goal being the attainment of skills sufficient for the job at hand. If, as the book *America's Choice* suggests *(see page 6 for review)*, the key to improving the competitiveness of the American economy is to reorganize the workplace, giving more responsibility to the worker, JSEP represents a step in the wrong direction. If, on the other hand, the Peavey/Meridian partnership were to measure and post improvements in educational achievement and productivity, JSEP installations would sprout all over, and we would hear no more talk about workplace reorganization and education.

What's the upshot of all this kvetching? That we need to focus on communication, organization, and evaluation. We all know multimedia technology is upon us, or will be on those of us who can get any money. And we may buy it. But will we allow ourselves to be sold the idea as well that any piece of information technology—from JSEP to holograms to virtual reality—will change the situation for the better without the explicit development of guidelines and protocols for its effective use? We cannot afford to buy that idea.

The Congressional Office of Technology Assessment is undertaking a two-year study of 'best practices' in adult literacy *(see page 4)*. If or when you get the chance to participate, don't hide what scares you. Trust the good your program has accomplished to elbow out a little extra space in which to report plans gone awry—we learn from our mistakes, that's the classroom axiom. If *I* learn from *my* mistakes, but keep the news a secret, perhaps the whole class is at risk. Not until literacy projects initiate effective evaluation, networks for sharing information, and funding and administrative structures that encourage projects to publish their limitations and failures as well as their achievements, will partnerships of industry, educators, learners and the government reverse America's freefall into illiteracy. ■

The *Adult Literacy and Technology Project* appreciates the gracious and consistent support of the **Gannett Foundation.**

AL&T Steering Committee

Eunice N. Askov, Ph.D.
Professor of Education/Director
Institute for the Study of Adult Literacy
The Pennsylvania State University

Bob Clausen, Ed.D.
Literacy Technology Consultant
Monmouth, Oregon

John Fleischman (Chair)
Administrator, Media Services
Correctional Education Division
Hacienda La Puente Unified School District
La Puente, California

Jane Nissen Laidley, Ph.D.
Executive Director
PCC, Inc.
San Ramon, California

Martha A. Lane
Adult Literacy Consultant
Santa Barbara, California

Tony Sarmiento
Assistant Director
Education Department, AFL-CIO
Washington, D. C.

Antonia Stone
Executive Director
Playing to Win, Inc.
New York, New York

Terilyn C. Turner, Ph.D.
Asst. Director,
Adult Literacy & Special Needs
St. Paul Public Schools
St. Paul, Minnesota

Publisher
PCC Inc.

Editor
Ed Gueble

Art Director & Production
Kristin Prentice, Eric Vogt
Sphinx Graphics, 1-415/848-4305

Associate Editor
Ellen Margolis

Printing
E&C Offset, Berkeley, California

Fullfilment
San Francisco Mail Service

©1990 PCC, Inc.

2682 Bishop Drive, Suite 107
San Ramon, CA 94583
1-415/830-4200

BEST COPY AVAILABLE

Turner

con't from page 2

rate at current levels. These are crucial issues that demand our concern, but there is another story to be told. What about the humanizing effect of technology? What about technology that enables us to do a better job of caring?

A great deal has been written, some of it by me, on the value of technology in facilitating and enhancing communication. But I'd like to push the concept a little further. Can technology make us better human beings, or at least facilitate emotions that otherwise wouldn't find fruition? Can technology help us to create new ways of of expressing our feelings?

From USA Today comes this story: "U.S. soldiers in the Persian Gulf may be far from loved ones, but they're not far from the latest in computer chip technology—talking cards. About 80,000 soldiers stationed in Saudi Arabia were sent holiday greetings stored on computer chips from their wives, mothers, fiancés, and children. The greetings, recorded last week at 10 U.S. military bases, are stored in the chips embedded in the cards. Push a button inside the card to hear a message lasting up to 10 seconds." This same technology will be available to all of us nationwide in card shops by mid-1991. My mother will love getting one of these.

"Technology has made me a better friend....My annual mailing of Christmas cards has been drastically altered and wonderfully enhanced by the advent of technology."

And what about video? I recently had lunch with a colleague who told me she was getting married soon. "How did you meet?" I asked. "Through a video dating service," she responded. "Tell me all!" I demanded. She recounted a tale familiar to those facing the pressures of a demanding career and a non-existent personal life. She simply had no time to waste trying to find a date. The dating service enabled her to preview and select people that she thought she'd be interested in meeting. She selected possible dates from a scrapbook and then watched a videotape of them in a private booth. She also made a tape herself, and had received a card from "Mike" indicating that he would like to meet her. She said, "My fiancé is embarrassed for people to know how we met, but I said, 'Why not? It worked just like it was supposed to, didn't it?'" The video enabled her to save precious time and energy, clarify exactly what her expectations were in a relationship, and ultimately find a mate. How can technology provide greater emotional support than that?

"Technology has given me a bond—a way of linking to others in the world about matters that concern me profoundly, such as literacy."

Technology has given me a bond—a way of linking to others in the world about matters that concern me profoundly, such as literacy. When two people begin to discuss their experiences with a particular piece of software, they move into a private world. Conversations at technology conferences frequently have an intensity that I rarely see anywhere else. Software-bonding? (Or is this getting too mystical?) On a practical note, technology is the reason this newsletter and the national conference came into being. There was a shared demand for a forum where people could break through their own isolation and struggle together for new solutions in literacy.

Technology has provided me with new friends and colleagues with whom I communicate through electronic networks, faxes, and phones. One friend faxes me computer cartoons on a regular basis, triggering a welcome chuckle in the day. As I travel throughout the country, it is gratifying to meet so many people who share similar views on the value of technology for literacy instruction. The emotions shared are strong and genuine. The members of the Steering Committee have become close over time by virtue of shared trials and experiences on literacy and technology. I'm suggesting that technology may not be the villain it's portrayed to be. I know that my own experience with it has been one of personal empowerment. It has made me a better friend, a better daughter, a better lover...well, that's a story for another day.

Terilyn Turner, Ph.D., is assistant director of adult literacy and special needs for the St. Paul Public Schools in Minnesota, and a member of the AL&T Steering Committee. She can be reached care of this newsletter.

Times

con't from page 11

process of considering computers and other technology use for the first time, or upgrading their existing technology, constitutes an invaluable resource for the community, a resource that is doubly unique because it can be shared.

For further information about the Times Mobile Reading Lab , contact Barbara Neder at L.A. Times Reading Lab, Times-Mirror Square, Los Angeles, CA 90053; 1-213/237-4738.

Note

1. The October issue of the BCEL Newsletter reports on a study of PALS by Evaluation Research, Inc., suggesting that "major theoretical and practical revisions are needed...if the program is to work effectively in a variety of settings with adults having diverse needs." Evaluation Research considers PALS "one example of the 'quick fix' computer-assisted instructional programs... flooding the expanding adult literacy market." Copies of the report are available for $7.50 from Evaluation Research, 1589 Centre Street, Newton Highlands, MA 02161.

Books

con't from page 6

ments of labor, education and defense aggressively desseminate information about workplace reorganization and training.

Recommendation 5: *A system of Employment and Training Boards should be established by federal and state governments, together with local leadership, to organize and oversee the new school-to-work transition programs and training systems.* Essentially, the boards would manage the mechanisms for the transition from school to work, or from work back to school, overseeing the youth centers and the reentry of adults pursuing their Certificate of Initial Mastery. The board would also manage a labor market information system to guide planning, and a labor-exchange service providing contacts and counseling to jobseekers.

Weaknesses in the organization of American education and industry are not news. *America's Choice*, however, suggests that the problems in the two areas are interrelated, and must be solved by a single and systemic response. *America's Choice* looks something like a corporate annual report—with an executive summary, lots of white space on extra-wide pages, and many graphs—giving rise to questions about the intended audience for the report. And those questions lead to the *real* question: who is going to start making what changes where?

The thrust of the *America's Choice* proposal aims at the federal government—at Congress, at the departments of Education, Labor and Defense (as perhaps the largest employer in world, if its contractors are considered), and at the President whose policies they shape and enact. *America's Choice* in fact asks for a giant first step toward the federalizing of education, which has historically been the responsibility of the states. After a decade of Reagan- and Bush-appointed cabinet members struggling to turn back the educational clock, limit the power of unions, and turn the Department of Defense into a cash cow for select businesses around the country, can anyone seriously think they will respond to the crisis in education/industry except by ordering up a double helping of more of the same?

Congress must be the direct source of tax and other incentives for workplace reorganization and training. In the foreign systems described in *America's Choice*, strong national regulation of management/labor relations and practices dictates companies' actions. Effective legislation of that kind is unlikely to be imposed unless business and labor clamor for it. As long as the economy remains strong enough that businesses can make other, short-term adaptations to improve their competitiveness, they will. If the economy takes the big dive, businesses may demand change, but the resources may not be available.

"Young people would take a series of 'performance-based assessments' beginning as early as middle school and coupled to the curriculum, leading to a 'Certificate of Initial Mastery.'"

According to the report, 95 percent of American businesses currently retain some version of the Ford/Taylor assembly-line model, spending tiny amounts on training workers and clinging to a steep hierarchy that places frontline workers at the bottom. Without government intervention, their attention will remain locked on the short term, and on the ways in which costs can be cut and production made more flexible by the use of subcontractors and temporary workers, or by moving assembly over the Rio Grande or overseas. In fact, some part of German and Japanese competitiveness relies on just such practices. For them the trick, or theory, revolves around sloughing the low-wage work while building a competitive edge in the service sector and higher-wage manufacturing. Included in the American companies which adopt these flexible practices are some of those represented by the signatories of the commission—in other words, they can see the problem and the solution, but other concerns and short-term answers may keep them waiting for someone else to do something. *America's Choice* may be best seen as an attempt to convince American businesses to urge the federal government to impose these strong measures on those same businesses.

This is not to say that the pursuit of policy and legislation at the federal level should be abandoned. Systemic changes coordinated to include both education and industry can best be made at the highest levels, and our lack of effective national policy is all the more crippling due to the size and diversity of our nation. But, as the authors of *America's Choice* contend, change in the wages and/or skills of the American workforce will come, willy nilly, and we must act as quickly as possible to ensure that the changes are constructive and beneficial. Many of the recommendations in the book can, and under the present system must, be made by individual states. The most striking measure, to strengthen the connection between education and work in the schools through the establishment of apprenticeships and instruction in technical and professional fields, could be enacted immediately by the states.

And at any rate, the needed instructors and materials for workplace-related education in the schools will have to come from outside the schools: states can conceivably offer tax incentives to businesses which provide part-time teachers (and/or materials and equipment) to schools in their area. Several states—Mississippi, Kentucky and Florida among them—and certain businesses have aggressively attacked their educational/organizational problems. States and businesses—and even cities, such as Minneapolis—must be encouraged to see the possibility of more independent

"America's Choice *may be best seen as an attempt to convince American businesses to urge the federal government to impose these strong measures on those same businesses."*

and immediate action, along the lines proposed by *America's Choice*, because they have the greatest control over educational practices under the current system, and we need to begin effective change now.

Along the same lines:

Worker Training: Competing in the New International Economy. *The Congressional Office of Technology Assessment. Available from Superintendent of Documents, Dept. 33, U.S. Government* Printing *Office, Washington, DC 20402-9325, 1-202/783-3238. Cost is $12.*

Worker Training offers 16 policy options to Congress which reflect a viewpoint similar to that of *America's Choice*, and in some cases duplicating or offering parallel suggestions, but focusing exclusively on the near-term gains in education and productivity which can be achieved by workplace education and training. If, as *Worker Training* suggests, 70 percent of American workers in the year 2000 are currently members of our workforce, adult and workplace education will be vital to success during these next crucial years.

Worker-Centered Learning: A Union Guide to Workplace Literacy. *By Anthony Sarmiento and Ann Kay. Available from Patricia Garcia, AFL-CIO Human Resources Development Institute, 815 16th Street NW, Washington, DC 20006; 1-202/638-3912. Cost is $5.50.*

Written as an introduction and action plan for union-created literacy projects, *Worker-Centered Learning* stresses the importance of serving the needs of learners, going so far as to advise union leaders to "just say no" to badly designed programs, which could harm workers and the organization. Detailed sections —covering methods of identifying workers' needs and goals, negotiating funding, linking the program to the community and designing the classroom, among other issues—could also be of great help to businesses planning workplace programs.

Working Classics: Poems on Industrial Life. *Edited by Peter Oresick and Nicholas Coles. University of Illinois Press.* Cost is $13.95.

An anthology work by 74 poets, *Working Classics* is intended to bear "literary witness" to an industrial workplace that, in the view of the editors and several of the poets, is undergoing radical change. A good-sized sample of the poems, while evocative and perhaps moving, sound a tad self- or over-conscious, as though written by poets slumming, instead of workers writing poetry. Many others, however, use plain language that resonates with a matter-of-fact authority. Deborah Boe, in "Factory Work," writes:

> *All day I stand here, like this,*
> *over the hot-glue machine,*
> *not too close to the wheel*
> *that brings up the glue,*
> *and I take those metal shanks,*
> *slide the backs of them in glue*
> *and make them lie down*
> *on the shoe-bottoms, before the sole goes on.*

Writing such as Boe's could be useful, even exciting, material to introduce to low-level adult readers. In any case, as the editors suggest, poems about work and the workplace focus on an experience, usually excluded from American poetry, that is central to daily life.

Leadership for Literacy: The Agenda for the 1990s. *Forrest P. Chisman and Associates. Jossey-Bass Publishers.*

The contributors to *Leadership for Literacy* have confined themselves to more modest, but more intimately informed, proposals for adult literacy instruction than those found in *America's Choice*. As Editor Forrest Chisman writes, "The authors...share the purpose of many in the field: to develop a national agenda for leadership and action on all fronts—political, institutional, and intellectual." But Chisman and his associates have a further mandate, "to set forth specific proposals—recommendations for actions that are based on what we know about the exiting literacy system, that are doable and economically feasible, and that by themselves will make a difference both immediately and in the long term."

Their suggestions are too numerous and far-ranging to list. Among the eleven essays, authors and titles include: Forest P. Chisman, "Toward a Literate America: The Leadership Challenge," "Narrowing the Job-Skills Gap: A Focus on Workforce Literacy" (with Wendy L. Campbell), and "The Federal Role in Developing an Effective Adult Literacy System"; Hanna A. Fingeret, "Changing Literacy Instruction: Moving Beyond the Status Quo"; Karl O. Haigler, "Building Ties Among Literacy Programs; Achieving Strength Through Cooperation"; Arnold H. Packer and Wendy L. Campbell, "Using Computer Technology for Adult Literacy Instruction: Realizing the Potential"; William B. Bliss, "Meeting the Demand for ESL Instruction: A Response to Demographics."

The writing overall is less than exceptional, which makes the book as a whole somewhat of a slog. But every essay contains useful information and, as promised, recommendations and steps which can be adopted in the near term. Karl Haigler's essay on linkages between literacy programs is clear and comprehensive. Chisman's history of the federal government's interventions in adult education is outstanding, but provides a dismal counterpoint to the systemic changes called for in *America's Choice*. The result is a book of incremental and evolutionary strategies, which the authors of the reports mentioned earlier would profit from reading.

con't on page 20

Books

con't from page 19

For the adventurous

The Condition of Postmodernity. *David Harvey. Basil Blackwell, Publishers. Cost is $16.95.*

It's not about literacy education at all, and when you get down to it, Harvey lightly mangles everything he touches, often through omissions that are understandable in a book so broad. His mocking references to French philosopher Jean-François Lyotard, however, show Harvey at his most small-minded, an academic blithely confronting one of our moment's great thinkers. In any case, *The Condition of Postmodernity* is a rarity these days, a book that is super-trendy in academic circles, but almost readable nonetheless. Harvey begins with cultural and economic histories of the modern period, which he considers to be 1848 to 1973, followed by similar treatment of the subsequent postmodern period, a history of the compression of space and the expansion of time since the Renaissance, a survey of theories of postmodernity, and his own theory about the postmodern economy as an evolutionary step made by capitalism. All of this is intertwined with accounts of architecture and urban planning.

The book is thick sledding because Harvey drops a lot of names—artists, thinkers, architects, Henry Ford, and such like—but the style is relatively simple, it's easy to skip the parts that don't make sense to you, and everyone who picks up the book will learn something they didn't know. Guaranteed. It just may not all be true.

It is, all joking aside, one way to get a view of the big picture. ■

Reading

con't from page 5

hension activities. Three creative questions ask students to apply what they have read to their own lives. The documentation suggests that answers to both kinds of questions be used as bases for class discussions.

Choosing from the activity menu, students can re-read the story, go to another story, and print their own writing or the stories and questions on the disk.

A complete management system is included in the package. Teachers can see scores for individual students or for the class as a whole. Full print options are also available—for scores, student writing, stories, and questions.

My only objection to the programs has to do with what students are asked to do as they begin to read a story. First they look at a graphic, and are asked what they think the story will be about (even though they have presumably selected this particular story, and the titles are pretty clear). Then they are shown the picture again, with the title this time, and asked again what they think the story is going to be about. After they write something in response to that question, they see the first paragraph of the story, which may be partially covered, with the instruction to read the paragraph, think about the picture and title, and again write what they think the story will be about. And twice—before being allowed to read the paragraph, and again before reading the rest of the story—students must decide whether they will read one word at a time, one phrase at a time, or the whole screen. It's too bad the student can't get to the story more quickly. Perhaps being asked to write once—based on picture and title—what the student thinks will be most interesting or important in the story would accomplish much the same goal as the procedure described above, and let the readers get to the story faster!

Both Reading Realities and Reading Realities—Elementary Series packages provide extensive documentation. Every option available is described with appropriate screen dumps. Interesting extension activities and literature lesson examples are included. Reading Realities also includes a bibliography of books related to topics included on the disks, as well as a listing of hotlines for those needing personal help.

Both of these programs have much to recommend them. Perhaps the Reading Realities stories can more obviously be used with adult readers. Certainly the topics are timely, and even if the characters in the stories are younger than the reader, we all can identify with them. Perhaps the learners you work with won't respond to the stories in Reading Realities—Elementary Series. However, any learner who is a parent may well see his or her child in a new light after reading one of these stories.

The stories in these packages are different from traditional reading materials. They are about real people caught in difficult situations. They are short, with carefully selected vocabulary. Student responses are honored through their writing. Take a look and decide for yourself.

Reading Realities and Reading Realities—Elementary Series require an IBM PC-AT compatible computer with 512K RAM, or an Apple IIe, IIc or IIgs computer with 128K RAM. A Slotbuster speech card is needed for speech on the Apple. Speech is not yet available for the IBM version.

Teacher Support Software, Inc.
1035 N.W. 57th Street
Gainesville, FL 32605
1-800/228-2871
Prices: Each of these story groups costs $169.45, Apple version / $179.95, IBM-compatible version; full package costs $489.95, Apple version / $519.95, IBM-compatible version.

Sara Armstrong, a former Montessori teacher and currently an educational consultant, is examining the role of images in cognition and learning, as she pursues an Ed.D. degree at the University of California, Berkeley. She can be reached care of this newsletter, or at 1319 Carleton Street Berkeley, CA 94702. 1-415/848-6340

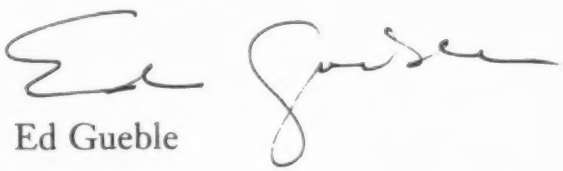
Your 1990 Subscription Has Expired!

Subscriptions to the AL&T Newsletter are sold on a calendar-year expiration basis. At the time you subscribe, you receive the issues which have previously been published in that year.* All subscriptions then lapse after our final issue in that volume. (Happy New Year, indeed!)

We hope you will choose to renew your subscription for 1991. If you have any questions about the status of your subscription, back issues, or anything else remotely connected to adult literacy or technology, please contact us. A subscription form and contact information are provided on the next page.

Thanks very much for your support during this last year. It's the Information Age, and we hope we help you keep informed.

Warm regards,



Ed Gueble
Editor

*New subscription orders received in December have been considered 1991 subscriptions.

Adult Literacy & Technology Newsletter

Subscription Offer

You are invited to subscribe to a unique periodical—the newsletter of the Adult Literacy & Technology Project. The project, comprised of literacy practitioners and theorists, and representatives of business, labor and government, is the first program in the nation to dedicate itself to research and advocacy of the uses of technology to aid in teaching literacy and other basic skills to adults. Please join our effort to create a more literate, productive and humane world.

Our four-issue newsletter subscription is based on the calendar year. To receive all four 1991 issues, complete and mail this form with the appropriate subscription fee (see below). Back issues will arrive with the next current issue.

Subscription benefits include:

- the AL&T Newsletter
- participant discount at the AL&T Conference
- discounts on selected AL&T publications

Subscribers at the Patron rate will also receive mention in the Newsletter, and inclusion on the Adult Literacy & Technology Project's Patron List.

Please check appropriate boxes: ❑ New Subscription ❑ Renew Subscription ❑ Reader survey only

Subscription Category	**Annual fee:**
❑ Individual	$15.00
❑ Non-Profit Agency	$15.00
❑ Business	$50.00
❑ Patron	$500.00

I would like to order from AL&T:

❑ The Guide to Recommended Literacy Software ❑ (member) $13.50 ❑ (non-member) $ 15.00

Total enclosed: **$_____.00**

Please make payment in U.S. currency or equivalent.
California residents add 7% sales tax.

_____
Name

_____
Title

_____
Agency

_____
Phone

_____
Address

_____
City/State/Zip

Completed form and checks payable to PCC, Inc. (fiscal agent for the AL&T Project) should be mailed to:

Adult Literacy & Technology Project
PCC, Inc.
2682 Bishop Drive, Suite 107
San Ramon, CA 94583
415/830-4200
Attn: Mahre Mackay

Technology Consultants
Adult Literacy and Technology Project

The Technology Consultants in the Adult Literacy & Technology Project have been active for the last three years, providing assistance to hundreds of literacy practitioners on a wide range of questions such as how to begin using technology, how to select software and hardware and how to find software for special-need learners. Requests for information have come from practitioners at many kinds of agencies: ABE, Laubach, LVA, universities, government, business, labor, community colleges and corrections.

The TCs, chosen for their literacy-related technological expertise, are 'on-call' for free or low-cost consultation, and for presentations at conferences. Please keep this list for reference.

■

June Eiselstein
The New Britain Public Library
20 High Street
New Britain, CT 06051
(203) 224-3155 or (203) 223-7667

Region Served: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

■

Christina Jagger
Laubach Literacy International
1320 Jamesville Avenue
Syracuse, NY 13210
(315) 422-9121

Region Served: New York, New Jersey, Puerto Rico, Virgin Islands

■

Donald Egner
Private Consultant
5806 Pine Hill Drive
White Marsh, MD 21162
(301) 335-2060

Region Served: Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia

■

Judith Lipscomb
Mississippi Office for Literacy
500 High Street
2000 Walter Sillers Building
Jackson, MS 39201
(601) 359-2673

Region Served: Alabama, Florida, Georgia, Kentucky, Mississippi, Louisiana, North Carolina, South Carolina, Tennessee

■

Deborah Young
UAW Ford/EMU Academy
7164 Camelot Drive
Canton, MI 48187
(313) 487-6138 or (313) 459-9217

Region Served: Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

■

Ruth Hollenbeck
Adult Education Department
Moberly Area Junior Colleges
Moberly, MO 65207
(816) 263-4110

Region Served: Arkansas, Oklahoma, Iowa, Kansas, Missouri, Nebraska

■

Mike Hill
Blackfeet Community College
P.O. Box 819
Browning, MT 59417
(406) 338-5441

Region Served: Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming

■

Jane Nissen Laidley
PCC, Inc.
2682 Bishop Dr., Suite 107
San Ramon, CA 94583
(415) 830-4200

Region Served: Arizona, Northern California, Nevada, American Samoa, Guam, Trust Territory of the Pacific, Hawaii

■

Lucy MacDonald
Chemeketa Community College
P.O. Box 14007
Salem, OR 97309
(503) 399-5093

Region Served: Alaska, Idaho, Oregon, Washington

■

Sheila Shaw
4343 Ocean Boulevard
San Diego, CA 92113
(619) 230-2800

Region Served: Southern California, New Mexico, Texas

People's Computer Company, fiscal agent
Adult Literacy & Technology Project
2682 Bishop Drive, Suite 107
San Ramon, CA 94583

Non-Profit Organization
PAID
San Ramon, CA
Permit #218

The Adult Literacy & Technology Newsletter

Winter Issue 1990

INSIDE

Mobile reading labs on a roll

Trade-offs and pay-offs in workplace literacy

The Office of Technology Assessment's new project

Teri Turner on technology and the season of caring

Software review: Reading Realities

A few books, and more...

The Adult Literacy & Technology Project benefits from the gracious and consistent support of the Gannett Foundation.

printed on recycled paper